# MILITARY CONSTRUCTION APPROPRIATIONS FOR 1956

MAIN READING ROOM

## ADDITIONAL HEARINGS

BEFORE A

## SUBCOMMITTEE OF THE COMMITTEE ON APPROPRIATIONS HOUSE OF REPRESENTATIVES

EIGHTY-FOURTH CONGRESS

FIRST SESSION

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SUBCOMMITTEE ON DEPARTMENT OF DEFENSE APPROPRIATIONS

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## UNITED STATES AIR FORCE ACADEMY

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Printed for the use of the Committee on Appropriations

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# MILITARY CONSTRUCTION APPROPRIATIONS FOR 1956

TUESDAY, JULY 19, 1955.

## UNITED STATES AIR FORCE ACADEMY

### WITNESSES

HON. HAROLD E. TALBOTT, SECRETARY OF THE AIR FORCE
LYLE S. GARLOCK, ASSISTANT SECRETARY OF THE AIR FORCE (FINANCIAL MANAGEMENT)
JOHN M. FERRY, SPECIAL ASSISTANT FOR INSTALLATIONS
LOUIS SKIDMORE, OF THE FIRM OF SKIDMORE, OWINGS & MERRILL
NATHANIEL A. OWINGS, OF THE FIRM OF SKIDMORE, OWINGS & MERRILL
JOHN O. MERRILL, OF THE FIRM OF SKIDMORE, OWINGS & MERRILL
WILLIAM E. HARTMAN, OF THE FIRM OF SKIDMORE, OWINGS & MERRILL
E. P. PURVES, EXECUTIVE DIRECTOR, AMERICAN INSTITUTE OF ARCHITECTS
L W. ROBERT, OF THE FIRM OF ROBERTS & CO., ATLANTA, GA.

Mr. MAHON. Gentlemen, the committee will come to order.

As you know, we have been discussing over a period of months the matter of the acquisition of land for and the construction of the new Air Force Academy.

When we had our hearings on the appropriations for military public works, we were advised that it would probably be September, I believe, before the design of the Academy would be in a position to be approved by the Secretary of the Air Force.

The Secretary got in touch with me a few days ago and said that he was going to appear before the Senate committee, and had tried to expedite the finalizing of plans. He said that he would be pleased to appear before us further in connection with the matter.

Mr. Secretary, we are glad to have you here this morning. We would be glad to have you take over at this point.

As I understand it, your consulting engineers are represented in this group; is that correct?

Secretary TALBOTT. There is only one consultant left. When we got this meeting with you the other consultants had gone on their way, and I could not catch them.

Mr. MAHON. That is all right.

### STATEMENT OF SECRETARY TALBOTT

Secretary TALBOTT. Mr. Owings, who made the presentation, was in the air and on his way to Colorado Springs, to go back there, and

we caught him at Denver last night and put him on another plane, and he flew back to make this presentation to you this morning.

If you gentlemen will bear with me for just a moment, I should like to be sure that you understand the procedure I followed in the selection of the architects.

You all know, of course, that in the selection of the Air Force Academy site that the bill provided that a committee was to be formed. I do not think anybody objected, and I think everybody was delighted with that committee; General Spaatz and General Harmon, who had studied this thing before; General Lindbergh; Merrill Meggs of Chicago, vice president of the Hearst organization, active in aircraft work for many years; and Dr. Hancher of Iowa University.

I do not know how many sites those men looked at and considered, but there were 200 or 300. They finally presented three sites to me on which I was to make a selection.

The three sites were Lake Geneva, Wis.; Alton, Ill.; and Colorado Springs, Colo.

I took some men and went out and made a thorough second inspection of all three sites. I selected Colorado Springs, which in my judgment was the best site. I have never questioned but that it is the best site.

Then we had the question of the architects to select. I appointed a committee of 6 men, 3 general officers and 3 civilians. They considered three hundred and forty-some separate individuals or groups, and they came up with the recommendation to me, after 2 or 3 months—I do not remember the exact time—and in that recommendation I took the No. 1 group of their recommendation, Skidmore, Owings & Merrill. I then took the No. 2, No. 3, and No. 4, and went to the heads of those groups; which were Saarinen, the eminent man from Detroit; Welton Becket from Los Angeles; and Harrison, of New York. I asked each of those men—they are the three top men—if they would act as consultants for me in reviewing these plans. They all accepted. Harrison then finally had to retire, because his wife had cancer, I think. So I got Dr. Belluschi, the head of the Architectural School at MIT, and I got Mr. Robert, of Atlanta, Ga., because I knew him well. He was high up in the profession, particularly in the civil engineering end of it, and Mr. Robert is also 1 of the 4 consultants. He is with us here today.

We have told these architects that they were going to be awarded the contract 11 months ago. They have had 11 months in which to work.

The concept they drew up at the start—I sent some of you gentlemen a copy of the letter I wrote the 16th of last May, feeling that there should be complete unanimity between consultants and architects before anything was presented to me, and suggested that there may be too much glass in this for the climate for the wind and all of that, and I did not quite like the concept.

Mr. Owings, who had been concentrating on this, said that he thought in their second sketches they had reduced this, but that they would work it all out with the consultants.

I do not remember, Mr. Chairman, the conversation saying we could not get any finalized picture until September. A finalized picture is something that will not be finalized for a year and a half, on all the detailing. But I think we have enough of a definite concept

to show you gentlemen just where we are going, and with these consultants, with the architects, and with their knowledge of our desires, what we think ought to be done. I think the concept will satisfy you to let us proceed.

Now I should like, if I may, for the record, to read a letter sent to me by Mr. Purves. Mr. Purves is the executive director of the American Institute of Architects. The American Institute of Architects has been very active in this.

I have had a lot of letters from various architects throughout the country. They have 10,000 members. It is like the American Medical Association. There is only one of these societies.

Mr. Purves is here this morning.

Mr. MAHON. Will you stand up please, Mr. Purves. Thank you.

Secretary TALBOTT. Mr. Purves wrote this letter to me—or, it is a statement. I should like to have the privilege of reading it.

Mr. MAHON. Do you still support the statement which the Secretary has, Mr. Purves?

Mr. PURVES. I certainly do, Mr. Chairman.

Mr. MAHON. All right.

Secretary TALBOTT. Yesterday the president of the society was also present at the other hearing.

This statement is as of June 30, just a little over 2 weeks ago, on behalf of the board of directors of the American Institute of Architects.

It was called to the attention of the board of directors of the American Institute of Architects at its recent meeting held June 25 in Minneapolis, Minn., that the design for the proposed Air Force Academy for the United States, Colorado Springs, Colo., is receiving a certain amount of adverse criticism and that this criticism has been widely publicized.

In view of the importance of this project historically and architecturally and in view of its significance to the American people, the board of the American Institute of Architects felt it should state the institute's position with respect to the engagement of and confidence in American architects. The institute believes that matters of principle and policy are involved.

In arriving at a selection of architects and architect consultants for the design of this important work, the Secretary of the Air Force followed ethical and objective procedures that were in the public interest.

The architects and architect consultants selected by the Secretary of the Air Force are among the most distinguished of American practitioners. Their experience is extensive, their reputations are worldwide and the buildings and projects to their credit are among the most significant productions of the American professionals. It is understandable that any structure or work of art will find itself the target of criticism, sometimes voiced without a knowledge of the problems involved. Design is best accomplished by men who are trained and experienced. There is no question of the experience and ability of the professionals engaged by the Department of the Air Force.

The United States of America now leads the entire world in the excellence and progress of architectural design and construction techniques. The Department of the Air Force has chosen its architects through proper and ethical methods.

The American Institute of Architects is firmly convinced that the commissioned architects should continue with the further development of their plans and the Department of the Air Force should proceed with confidence knowing that the final result will be in the best interest of the American people.

Mr. Purves, I would like to ask you a question. This came entirely voluntarily? No one in the Air Force or otherwise suggested it?

Mr. PURVES. That is quite right. That came entirely voluntarily from us, without any suggestion from any outside source.

Secretary TALBOTT. I should have known, but I did not know what the American Institute of Architects was.

I did not want you to think that this was in any way instigated.

I think in order to save time the thing that would be most interesting to you is to have Mr. Owings make the presentation. Mr. Owings has been concentrating on this work for 10 or 11 months. I should like to have you hear from him the background, and how he arrived at his various studies.

I hope you will bear with me. It will not take over 20 or 30 minutes. If you will let him proceed, that is all that would be required. I would suggest, if you want to stop him to ask questions, that would be fine; otherwise, let him go through and go back to ask the questions.

Mr. MAHON. You are recognized without interruption until you finish your statement. I believe that would be best.

Secretary TALBOTT. I have with me here Mr. Skidmore, the head of the firm, with Mr. Merrill and Mr. Owings.

Mr. MAHON. We have seen Mr. Merrill a number of times.

Proceed, Mr. Owings.

GENERAL STATEMENT OF MR. OWINGS

Mr. OWINGS. As Secretary Talbott said, we have been at this for almost a year.

I have heard mention of a soul. Just as a human being has a soul, a human being also has a brain and a body, and we will agree that that brain and that body is a complex mechanism.

So I am going to take the liberty of going over with you what we have been doing in the last 11 months, which in effect is to develop the body and the brain to the point where it is qualified to have a soul.

For those of you who did not get out to Colorado Springs, here are some pictures of the site. Over here—I am at a loss to know where these should be placed, Mr. Chairman.

Mr. MAHON. If you will leave them there you would be better off, I believe. Stand back as far as you reasonably can.

Mr. OWINGS. This picture [indicating] indicates the best landmark on the site as such, which is Cathedral Rock over here [indicating] which is near the northern boundary.

Secretary TALBOTT. How high is that?

Mr. OWINGS. I am not sure.

A VOICE. About 200 feet.

Mr. OWINGS. It is a formation of eroded rock. Apparently the whole area at one time was at that level. It is a very important mark, to the northern edge of the site.

Here [indicating] is Pikes Peak.

This [indicating] is an aerial view looking south across the mesas, and gives you a good idea of the character of these fingers that we have to deal with. We call them mesas, coming out from the eastern slope of the Rockies. There again [indicating] is Cathedral Rock; this little spot right there.

This [indicating] is a picture of the area to the north and the mesa that we propose to put the academic area itself on, which is here [indicating], and this area right in there [indicating]. This is called the Lehman Ranch at the present time, for those buildings there [indicating].

This [indicating] is a view to the west, showing some of the area proposed for the support housing, where the assistant professors and other supporting personnel will live.

Now, the first thing we tried to find out was that we considered this as a long-term—200- or 300-year—operation. We felt that it was our obligation, knowing the way the growth of this country has gone, more or less, in the larger towns, on an unplanned basis, to consider this. We felt it was very important that we develop a study of the regional population.

This circle [indicating] on this card—by the way, these cards are the result of many, many man-hours of work, and the actual card is, I thing, about 5 feet high and about 3 feet wide, and this is the one we have selected out of hundreds of similar charts we have made, to give you an idea of what we have done.

This outer circle [indicating] covers Denver and Pueblo, 50 miles in diameter. It still is the site. We wanted to find out as much as we could about what the population trends over the Nation 50 to 100 years would be.

On the theory that this is drawing attention now and will become even more important as time goes on, what would the population, if it came there, do to us in terms of planning of our area?

Then we were interested in regional transportation. We found that the north and south transportation was always going to be the principal route, because of the area of the rampart range and the Rockies on the west.

We found that our problem was to provide a sufficiently large strip north and south that would not interfere with any possible plans for the Academy itself, to provide innumerable freeways and speedways and so forth between the north and south, Pueblo and Denver. We are satisfied we have no problems there that we have not met.

Then there is the zoning. Zoning, of course, is the greatest, almost, of all of the problems, because the land use in an area is the thing that determines the quality and the value of that land. Since we had an academic area to develop, a place where we should have the ideal conditions for these boys and the supporting personnel, it was very important for us to find out what industry and commerce was going to do, because there is a tendency at West Point and Annapolis and all other institutions of importance to have those various uses impinge upon the fundamental use of the Academy.

We have made a careful study of that. That was one of the ways in which we determined our recommendation as to the site boundaries.

We did that on a detailed basis, after the regional one, in the vicinity zoning. Here is the Air Force [indicating]. Here is Colorado Springs [indicating].

We are concerned with adequate housing, adequate growth for the community, and still to control this industrial and commercial growth so that it will not bother the ultimate use of the Academy.

Over here [indicating] is just one of the many charts that we made in our study of the climate. We felt that it was absolutely necessary to know exhaustively what the temperatures in the Colorado Springs area are in each month of the year, and each hour of the day in those months. We worked out charts, for example, which show what the temperature is at 2 o'clock in the afternoon in January, in the middle of January, and what is the boy likely to be doing in January? The chances are that he is in his classroom. In August what is the temperature at 2 o'clock in the afternoon? Where is the boy? He should be out on maneuvers.

There was the problem of adequate orientation and the proper use of this interior space in terms of the climate and in terms of the use of that building at the point, and the climate condition was a big item in our study; and also the prevailing wind conditions.

Generally speaking, the people we have met who are not familiar with Colorado Springs are surprised to find that there is not a heavy snowfall in the winter and that it is not a place with what you might call a winter climate. Actually, almost to their regret, that is what results in the water situation. They sometimes wish it were not that way. It is a remarkably mild climate.

And then we went into the water supply problem as exhaustively as we could on a regional basis and on a local basis, to work out with our consultants what the situation was and satisfy ourselves that the water supply was adequate.

And then they completed the general studies of the region and the vicinity, and we made another whole series of studies then on the programing of the Academy.

What is the criteria? What is your place going to be used for?

In other words, we had to do what is not usually necessary. We had to write a program, with the help of—in fact, we worked very closely with General Harmon, General Zimmerman and the entire academic staff, to determine the program and the use of the buildings on this site.

This [indicating] was the result of that, in the form of a construction phasing program. In other words, what buildings were to be built in what years and how could we get sufficient facilities to go in time to open the Academy in 1957, and how much would that involve in each type?

For example, to do that we needed the dormitories, cadet store, dispensaries, and cadet dining hall, under the cadet living. Under the cadet academic we needed the humanities and the sciences and the library for study.

We needed a certain amount of housing, and we needed a certain amount of athletic facilities.

Then in the second year we add to those, and in the third year we add further to those.

On that basis the chapel—the much-discussed chapel—ends up as not requiring finalizing of design until the very last. Like any other great religious edifice, it deserves, it should have and it will get the maximum amount of long-time study and consideration we can give it.

As a result of the programing worked out by the Academy staff, we developed flow charts and diagrams without reference to the site of what should happen in relation to the various complex elements that must work together.

For example, we have the public. As far as the Academy is concerned, the boy and his studies are entirely different and in many ways must be protected against the public, and yet the public must see this thing easily and freely.

On that basis we developed a flow around the academic area so that the public could look in and still not interfere with the actual functioning of the area itself. Then we developed the Academy itself from what the boy does. And then we took the support housing for the people who are going to take care of the operation. And we felt that

they should be between the boy and his studies and logistics support—the airstrip and things of that type. So out of this chart we took detailed studies of each of those functions.

This one [indicating] is the cadet. Here he is in his dormitory [indicating]. He goes from there to his studies [indicating]. He goes from there to his meals [indicating].

Under all of this setup, that anybody has suggested for the functional arrangement of the area, the cadet goes to his quarters between classes and after, and before and after each meal. So it is the functional point.

Then we have many other things. We have up here [indicating] the athletic facilities; the drill and parade ground; and the recreational area here [indicating]; and the administration and religious edifices.

This one [indicating] is a detailed study of the housing. That is the people in the support housing, in contrast to the housing of the cadet. It is shown in great detail.

Then we developed a series of topographical maps in relief, so as to be able to determine the buildable areas. I think this [indicating] along with this [indicating] illustrates the point clearly. The gray areas are what we call buildable. The white areas are too steep for building. In this case you see the relation of your 17,500 acres of this dark—this [indicating] is the academic area. You will notice it is tucked into the white area, meaning it is on a mesa.

Beyond that, in this gray area [indicating] is the maneuver area, which they need a great deal of in the summer. These gray areas here [indicating] are recreational, and these dark areas [indicating] are the housing. Then this great gray area here [indicating] is logistics support; supply and airstrip.

This [indicating] shows the detail of that in model form; how we are trying to study the housing from an economic point of view and and aesthetic point of view.

This chart [indicating] with all of these spots on it, indicates the many complex services that have to be provided. This one right here [indicating] is the academic area itself, which is the core of the whole thing, where the boys live, work, study, and pray.

All of these other things—family housing, airmen's area, stadium area, the community center, the hospital, the superintendent's quarters, maneuver—all are indicated on there.

Then we have been through a series of really one, two—three basic site plans of the academic area, and in all of those they have always remained on this mesa. This is the result of the study of the four consultants and ourselves, and at all times we have always been in full agreement on that location and on the relative location of the buildings in that area.

Out of that stands before you the master plan of the academic area [indicating] which we are all in unanimous agreement on, so far as the consultants, the Academy staff, and the construction agency are concerned. The buildings on this are starting from the west at the rampart range up here [indicating]. This is tucked against the pictures I showed you originally.

The administrative area [indicating] and the religious area [indicating].

Below that point here we have taken advantage of the grades in order to develop the maximum economy of construction and also to

take advantage of the views and of the relative visibility of the various areas from the distance.

The second level is the campus level. This is what we call a campus [indicating]. This long building here [indicating] is the barracks or housing for the cadets. This building here [indicating] is the academic building with the sciences, humanities and library. This [indicating] is where they eat. So here [indicating] is your housing and study; your heating; and your educational areas [indicating].

Down below is the drill field. To the north is the athletic facility.

Now I should like to take this a little further. I have tried to emphasize its complexity, and now I should like to emphasize its simplicity. We are dealing in the last analysis with a boy and his roommate and we have got to worry about what he wears and where he puts it, because he is under a terrific time schedule. You have to do everything quickly.

We started out with where he put the various types of shoes he needs; galoshes and his boots; where he puts his various uniforms; where he puts his caps and his overcoats; the drawers in which he puts his gloves and his mittens and shirts of various kinds; his pants and his towels. We have analyzed that carefully, reanalyzed it, and checked it, because this type of thing is the nucleus of any building. It is what the building is going to be used for.

From that we came to the room that this boy spends many, many of his hours in, because the room is his study hall. Apparently the idea is that they go back to their rooms instead of going to a study hall. So he sleeps and prepares his toilet and studies in a room which is 14 feet wide. It is that simple, this room [indicating].

Now, the result of those rooms is a building. Here [indicating] are the closets. Here [indicating] are the cases we just showed you. Here [indicating] is the wash basin. Each boy has a separate washbasin. There [indicating] are beds. Two chairs. And desks and a bookcase and a window.

Now, in any normal dormitory in any normal college or university they always take advantage of the maximum light and exposure that they can get in that 14-foot room, because every 14-foot room is another room. They enter from an interior corridor.

We think of this building as a building where the boy comes in through an interior corridor and goes out to sit down and study and work and sleep. These two pictures show specifically what that room looks like; with a final design agreed upon with everybody.

This [indicating] is looking out of the window. The boy is standing at his picture window. On this side is the fixed ventilating louver area, which can be controlled whether it is raining, snowing, or the wind is blowing. If he has left the room and a snowstorm comes up or a duststorm he does not have to worry; he gets ventilation. There is another ordinary casement window on the side that he can open if he sees fit. There is a desk. There is a bookcase. These [indicating] are the beds.

This [indicating] is a view looking in the window, which you cannot do, because we have arranged these rooms so that they have privacy. But if you could look in the window you would see the desk and the chair—2 desks here, and the 2 beds; the case; the washbasins; the mirror; and the closets and the door.

Now, out of that we produced a building to house 2,600 of these boys all at once, and to give every one of them a view. We are very anxious to give the maximum benefit to all, and we took advantage of the site.

This [indicating] is a mesa. It slopes off fast on this side [indicating]. The view to the north is magnificent. We have four tiers of rooms on that side. That is north. A wonderful view. Ideal.

The south has another wonderful view, and not quite so ideal as the north, but perfectly good out there, and offers sun control for two tiers.

The balance of the boys, on the east and the west, which is the least desirable, are carefully arranged so that there is a minimum of exposure, and those mostly are in courts. That gives them intimate and attractive views.

Also, we have tried to solve two things at once. There is the mass movement—the spirit of the corps—the formation of all of these boys, 2,600, in a row, marching over to the messhall. We wanted quick access, ease of access into the buildings and out. At the same time we wanted those boys to feel at home and in smaller groups. The court arrangement permits that. It permits the feeling of a wing or a smaller echelon, 100 or 200 boys.

I think we have the best quality of intimacy along with mass feeling and esprit de corps.

Now, we have the same problem, since we are going to educate them, in the sense that they get instruction. These [indicating] are the section rooms. We studied this problem very carefully. When they go to a section room they have limited time. They are in competition with each other. Most systems call—all, today, call for 12 blackboards. Each boy gets a problem. They have a time limit on how long it takes them to do it.

We found that where they had partial natural and partial artificial light that some of the boys were at a big disadvantage, because the light would vary between the two. After careful study we determined in these section rooms, where they get this intense instruction, the rooms should be sealed and artificially controlled from the standpoint of lighting and ventilation. So we have rooms with no windows in them.

That is the basic principle behind the section room we use in this scheme.

However, we want to give those boys a break between those classes, so the whole principle of the design evolves with what we call sidewalks in the air. They come up in open galleries to the levels they are going. This [indicating] is a sidewalk out here. There is another out here [indicating] at the four levels involved. They come into the glass-enclosed lobby. They always have to carry their hats and their coats, being in uniform, and they hang their hats and coats up on the wall.

There is a suite of four classrooms available. They go in those classrooms, and in 45 minutes they get their coats and hats and come out; they have a smoke or take a deep breath of air or see the view, and go on to the next room.

This design, which has evolved since the drawings you saw before, permits us to have a building which is substantially without glass.

The only glass is in the area that enclose the little lobbies, from which they get into these rooms.

Combining the climate at Colorado Springs with the necessary functioning requirement of the section room, we get a building that solves our problems and also answers that much-discussed question of glass.

Out of that we got a great big building again. This building [indicating] is in the nature of 800 feet long. Here [indicating] is the library. Here are the humanities—which we call liberal arts—and sciences [indicating].

These things there in the middle are the big lecture halls and have a different function. Therefore, we took out the rhythm of construction.

Out of those two fundamental ideas came, we hope, the esthetic, or the feeling of the thing. We prepared 2 drawings here—really 3, but 2 that go together, to show you what we and the consultants recommend as the architecture of the Academy.

I should like to point out that we are designing this for a minimum of 300 or 400 years. When Brunelleschi built the cathedral at Florence he was building at the time modern architecture. What we do here today is, in the consensus of our four consultants and ourselves, not only the best approach, but the only possible approach to the problem, because modern architecture is not an aim, it is a product of the economics of the age.

Gothic architecture, built honestly today, would cost a minimum of twice as much per square foot, per cubic foot or anyway you want to put it, as the so-called contemporary design. We feel, therefore, that there is no other answer but the contemporary design.

Next: How do you tie that contemporary design into the terrain, into the site, and give it a soul? We think that is unusually easy to do in this area, because we have these red stone mountains around us. We have tied those red stone mountains in by taking the red stones and building the retaining walls that are necessary to hold up the earth that makes the edge of this mesa, and that becomes a base or a foundation that gives you the sense of the quality of sturdy permanence of the mountains around you.

On top of that—in this case this [indicating] is the Academic Building—in the areas you see there the masonry construction, or whatever the material turns out to be which is right; whether it is granite, marble, limestone, or sandstone. That is the part we have not come to a final agreement on with our consultants.

The building itself is a reinforced concrete structure, which is the most economical construction we know of in the country. On that we use glass and masonry and metal where it seems proper to do so.

This is a court view of the quarters [indicating] showing the windows and the curtains and the ventilators. Each of these [indicating] is a room in which 2 boys live and work. This [indicating] is the lobby area that separates the two.

These buildings we have agreed upon. We are within, we will say, 5 to 10 percent on the esthetic with the consultants. We have finalized the plans. We have recommended to the Secretary that he proceed with these buildings on this basis.

There is a third picture [indicating] which shows them tied together externally, which I thought you might be interested in. We tried to

create the feeling of a campus, where your boys can walk around if they have any time and sit down on the grass.

Here [indicating] are their quarters. Here [indicating] is the Academic Building. Between them is that red sandstone retaining wall on which memorial plaques and various things can be put. When classes graduate they will want to put up whatever they want to put up. There is the area for it. There are the mountains in the background.

That is, Mr. Secretary, about all I have that I can think of.

Secretary TALBOTT. Mr.Chairman, I might say one thing. I should like to have you turn back to where we can show where the golf course is to be.

GOLF COURSE

I have taken it as my responsibility to get certain things that I do not believe I would want to ask this committee to do. I would not like to ask for a modern 18-hole golf course and a clubhouse, a hockey rink of an arbitrary nature, so I have taken it on myself to see if I can organize groups that want to make contributions. I have some sculpturing. I have had various people say that they would like to do things for the Academy. I will report to the committee as each of these things is done. They will be given to the Air Force Academy Foundation.

Mr. SHEPPARD. Where is the football field?

Secretary TALBOTT. The football field?

Mr. SHEPPARD. Yes.

Mr. OWINGS. Right out here [indicating].

The golf links are over here [indicating].

Secretary TALBOTT. The golf links are over there.

Mr. OWINGS. This [indicating] is the football area.

I forgot to make one statement about these buildings. The Academic Building, the way it is now designed and the way we recommend it on a finalized basis, has slightly less glass in its exterior surface than the Department of Commerce Building in Washington here today. I think that was one point

One more point: This [indicating] is a picture of this same building you just saw, those of you who were in Colorado Springs, and this was all glass on that other system, where we had to enter these glass rooms from the other way

I think those are the points I neglected to bring out from last time.

Mr. MAHON. Where is the consulting architect?

Secretary TALBOTT. The only one left is Mr. Robert.

Mr. MAHON. Mr. Robert, will you come forward, please.

WORK OF CONSULTANTS

Have you consulting architects really given this matter a thorough sifting or not? Have you really given it any time and energy?

There seems to be no doubt but what the consulting architects are men of ability, but there are a lot of men of ability in this country who get appointed to committees who are mere figureheads and who do not devote their best energy and effort to the project; if you understand what I mean.

What are the consulting architects actually doing, and what have you done? What do you propose to do?

Mr. ROBERT. Mr. Chairman, I would like to answer that for you gentlemen.

In the first place, I am serving with Skidmore, Owings & Merrill on engineering features of this proposition. At the same time, I am a special consultant to Secretary Talbott in connection with the overall picture, as a matter of experience and background in building. That is to see whether in my opinion you are getting what you should have.

I think I am answering that correctly. I am leading up to the point that the architectural consultants as such are three outstanding men in the profession. Your question was very good about the time and the interest that these gentlemen are spending.

It took a little time in the beginning for the architectural principals to put together this thing to where the consultants, the architectural consultants, could look into the picture and could start getting a grasp of the architectural concept. That was necessary.

Before that was done Secretary Talbott and some members of your Armed Services Committee of the House were very much on my neck in connection with the water features of this, because it was a very touchy subject. So, leading up to the time that the architectural consultants were working on this, we were working on that other feature.

Beginning some 4 months ago I believe at Chicago, these architectural consultants have been sitting in on every discussion on these buildings.

I know that you appreciate that practically no two architects would sit down, if they were locked up in different rooms, and get together on the same concept of an architectural problem. It is like picking a suit of clothes or anything of that sort. So there were several meetings to lead up to a meeting of minds. Every meeting has shown greater and greater interest by the architectural consultants, because they were getting more into it.

We have had 2 very critical and very much-discussed meetings, 1 of which took place this last weekend, and another 1 about 4 weekends ago on the site at Colorado Springs. We went back out there to go over the site and visualize the Academy sitting on those mesas in the mountains, and all of the other features, so that you would have it all together.

I have employed architectural consultants myself in my own business. I have not seen any that have paid any more attention or been any more interested in a project than these architectural consultants.

This is a great challenge. There has never been, in my opinion, anything like it ever built in the history of our country. I do not live far enough back in the old world to know what they did in those days, but this is a great challenge and these architectural consultants have gotten really great enthusiasm about it.

Mr. Saarinen and Mr. Belluschi were here yesterday. Mr. Becket had to go back West. But they were here yesterday in the Senate hearing and got away before this was set up. But they are very enthusiastic about it. They are very ambitious that they want to be known as having been connected with the thing that develops as wonderfully and as big as this.

Now, do not consider for a moment that there has been a 100-percent meeting of the minds on everything. It would have been well if consideration had been more quickly accepted, and if you could have

been sitting in on some of the meetings and seen the differences of opinions you would understand it better; but it had to be thought about and brought down. It was not like you would do some particular thing, like some of the features we are wanting which are more or less standard. They are technical, but you do a technical job of working it out.

This is a concept—a mind concept. The architects have been particularly interested.

Understand, these meetings are continuing to go along and will until this is laid in front of the Secretary for his approval; because after all is gotten together it wants to be so that they can walk in to Mr. Talbott and say, "This is what we think."

There might be some little discussion even at that point. He will certainly be critical, to be sure it meets the Department-public concept and all like that.

I can assure you, I think without any question of doubt, that your architectural consultants—I am an engineering consultant on it, but I sat in with them on the general concept—have gone to extremes. All of them have agreed step by step on the overall, big picture.

There is the matter of acquiring sufficient property to protect this great institution in years to come. That was quite a problem, because so many people are interested; you know, they wanted to get up close to it. Everything from the big real-estate development to the hotdog stands was involved. You had to protect it. There is not a college in the United States, I doubt, that has a property sufficient to what they thought they needed. In every State you are acquainted with that.

The next thing was getting the location. All of the architectural consultants immediately agreed that you should get out of Monument Valley and in the mesas, where you could develop a setting there that would be in dignity to this great institution.

Of course, if you were in a different territory, with different terrain, you would be maybe in a flat, rolling country, like in my part of the world and different places. Out there on that particular site it was natural to put it where it is being put.

The architectural consultants spent much time on this master plan they are showing, as just explained to you. I was personally greatly interested in watching their discussions and listening in on the discussions of the arrangement of those buildings, and all of that, from an architectural standpoint, a great architectural standpoint. Those buildings, from the plaza on top, where the administration building is, down to the campus, down to the parade ground, to the athletics on this side, looking off toward the city part of it—to me that was a liberal education. I feel like I have learned a great deal myself, even as old as I am, in how a thing like this should be handled.

I doubt whether there would be a half of 1 percent discussion further on this up here. Oh, they will get together and discuss twisting something a little bit, and will be doing that right up to the time it is finished. Like all great things, after you get clear through, somebody will say, "I wish we had moved this 10 feet further," or something.

I have never seen a thing given more study by great ability than that. Getting into the buildings, it has been the same thing. They have fought it out about the dressers and the washstands and the

location of furniture. Now they are getting out into the exterior, because we all realize there was what I might call a sort of a shock at first on the modernistic type of buildings. They have been very concious of that.

As Mr. Owings has showed you, the development of the academic building has completely changed the aspect of it. All that was brought about by a very deep study, to answer specifically and finally. I have never seen a bunch of architectural consultants giving of their knowledge and of their concept more than your architectural consultants. All I have been doing is looking on. I am not supposed to be an architectural consultant.

Mr. MAHON. Is this something you think the Congress ought to buy at this stage?

Mr. ROBERT. It is not presented to be bought, I do not think, in the real sense of the word, at this stage, because the Secretary is watching the development. It has to be bought to the extent that it could be badly hampered, in carrying it out, if you cut it off, or if something messes you up. It is just like taking a stride in a race, or anything else. You get going, making your plans, and you have to keep going.

We have discussed it in the whole organization, with Mr. Ferry particularly, Secretary Talbott's special representative; that the timing of the letting of the contracts is involved. You know, you can break your stride a great deal and upset your whole program if you are not properly approved or sanctioned to where you can carry out your program.

Mr. MAHON. If you were a Member of Congress and were charged with considerable responsibility would you at this stage say that this thing looks good enough that the Congress should release funds to the Executive for a free hand, under these safeguards, to proceed with the construction of the Academy?

Mr. ROBERT. Most certainly, yes. And to emphasize the importance of that I would like to say this: Naturally, when funds are withheld, it is almost an indication that there is something badly wrong, do you see? It breaks the stride.

It was already set up that Secretary Talbott was receiving this information as rapidly as possible to approve. Certain things have to go ahead. There is no misunderstanding or dissention or lack of coordinated minds on where you are going to put this, or what is going to be prepared to receive this. That ought to go ahead immediately. You cannot, without funds, decide on the setting of those walls, the grading, and all of that, and then get ready to let contracts to follow right along economically on top of that.

I would say this, gentelmen, if I were a Representative or if I were sitting in your position of representing a board of directors or an executive committee of a corporation for the funds which we deal with all the time: I most emphatically would feel it would be to the best interests of this project if you would vote them the necessary funds to proceed in an orderly fashion.

I think I can assure you, from the guarantees I have had and everything, you will not get any approval behind your back that will embarrass you, your group, for having allowed them to go ahead; because if ever anything was being watched, with consciousness of what it means, it is resolving this from the Secretary's Office.

Mr. MAHON. Mr. Owings, do the buildings there run from west to east? Is that the way they run?

Mr. OWINGS. Yes; they have them.

Mr. MAHON. The upper part is the administration building?

Mr. OWINGS. This [indicating] is the administration building.

TYPE OF LAND

Mr. MAHON. Is this flat mesa land? Is the mesa up higher than the surrounding area or is it lower?

Mr. OWINGS. This [indicating] is the highest. This [indicating] is the next highest, in here.

Mr. MAHON. Yes.

Mr. OWINGS. It slopes off in all directions. It is a finger of land.

Mr. MAHON. This will be visible from quite some area?

Mr. OWINGS. It will be visible from the big highway.

Mr. MAHON. It is not in a hollow or something like that?

Mr. OWINGS. No; it is finger land. It is a finger which is formed by hollows on three sides.

Mr. MAHON. That land is pretty poor land? You have to make your land there, pretty much?

Mr. OWINGS. No. We are following substantially the slope. It is high here [indicating]. It really tapers off from the mountains.

Mr. MAHON. Yes.

Mr. OWINGS. I think maybe this [indicating] will show it. Where is that little card with the terrain on it?

Well, it is just like a finger. Here is the rampart range—and there is my finger. That is the mesa. We have taken the general slope toward the east. Wherever you see a dark line we have kind of cut down again. So we have 3 levels—1, 2, 3.

Mr. MAHON. How much is the fall from each level?

Mr. OWINGS. It varies. I believe—and I am not sure of the exact amounts—it is about 20 feet in here [indicating] and then about 12 or 14 feet in here [indicating]. And then I think there is about another 20 feet in here [indicating].

Mr. MAHON. About 50 feet?

Mr. OWINGS. I think it is more than that. I think it is probably 30 feet here [indicating]. I think there is an 80-foot drop.

Secretary TALBOTT. That is at the side.

Mr. SCRIVNER. Somebody ought to have elevation markings, to tell that exactly.

Mr. OWINGS. I can give it to you exactly. I beg your pardon; they are on here now. This [indicating] is 7,120 feet at this point. This [indicating] is 7,150 feet at this point, which means that there is 30 feet in there.

This level here [indicating] is 7,175 feet; so there is 25 feet there. This [indicating] is 75 and this [indicating] is 98, so there is another 20 feet here.

Mr. MAHON. Is there anything too abrupt, to make this impractical here on the changes in level? Is that a bad disadvantage?

Mr. OWINGS. It is a great advantage in our judgment, because it permits us to create what is known as a basement on a level.

For example, we have an unusual advantage here. This [indicating] is a four-story barracks. Due to this campus being at an intermediate

level, you enter and walk up 2 flights and you enter and walk down 2 flights, so that the campus is in the middle of this development, 2 floors up and 2 floors down.

Mr. MAHON. I see.

Mr. OWINGS. That is possible because we are on a finger land. It permits the floors.

DISTANCE BETWEEN BUILDINGS

Mr. MAHON. How many feet are there from where your building or barracks starts down at the bottom up to the top of the barracks and from there to the top point?

Mr. OWINGS. This is 100 feet to the inch.

Mr. MAHON. Did you say 800 feet?

Mr. OWINGS. I said 800 on this building here [indicating].

This [indicating] is about 1,200 feet from here to here. One inch equals 100 feet. That is about 12 inches.

Mr. MAHON. How many feet are there in a quarter of a mile?

Mr. OWINGS. There are 5,280 feet in a mile.

Secretary TALBOTT. About 1,300.

Mr. MAHON. It is nearly a quarter of a mile?

Mr. OWINGS. It would be.

Mr. MAHON. How far is it from this eating facility to the barracks area?

Secretary TALBOTT. 800 feet.

Mr. OWINGS. 800 feet.

Mr. MAHON. Is that a pretty long distance?

Mr. SCRIVNER. How far is it to the farthest point, where the farthest cadet point would be? You will not go that way; you will have to come from two sides of the triangle.

Mr. OWINGS. I said that was 8 inches. That is 800 feet. 1,600 feet.

Mr. SCRIVNER. 1,600 or 1,700 feet?

Mr. MAHON. That is considerably over a quarter of a mile.

Mr. SCRIVNER. Almost a half mile.

Mr. OWINGS. 2,150 feet.

Mr. MAHON. I do not know how long it takes to walk that distance. Is that going to fit in?

Mr. OWINGS. That has been very carefully analyzed. One of the reasons for this location is that the corps gets together as a unit three times a day. We carefully analyzed this and questioned the men who graduated from the Academies. They want to have a certain amount of show or formation. They want to march to the restaurant.

Mr. MAHON. They will march to the restaurant in formation?

Mr. OWINGS. They march to that. This takes all of the men. This [indicating] seats 2,000. It is planned that way.

On the walking distance, it is perfectly practical from here to here [indicating] and from here to here [indicating]. They do this during the day, and it is desired that they do it. The idea of the outdoors is part of their training.

POSSIBLE EXPANSION

Mr. MAHON. Let us assume that the Air Force becomes so popular with the American people that we decide we want to expand this facil-

ity and take care of about 1,000 more, or maybe twice that many cadets. What would you do then?

Mr. OWINGS. This space in here [indicating] is susceptible to expansion in this direction [indicating] for the quarters. In other words, we would add another one of these units down here [indicating], four stories high.

Mr. MAHON. That would take care of how many more?

Secretary TALBOTT. That would take care of a full 1,000.

Mr. OWINGS. That would take care of 1,000. That is about one-third. Then we have got a fifth floor possible on the mesa. There is still room for a fifth floor below the four, because we have the mesa, a little higher than that.

ELEVATIONS

Mr. MILLER. What is the elevation in the valley below? How high up is your campus?

Mr. OWINGS. 7,120 to 7,175. That is 55 feet from this point [indicating] to that point [indicating]. This still slopes down. When you get down to the road you are about 6,800 feet.

Secretary TALBOTT. May I say this, Mr. Chairman: Every consultant we have had, particularly my first question is, "I would like to have you reexamine the site."

Every one of the consultants is enthusiastic. Then, the one thing they all said was, "This site is wonderful. This is a monumental site. We are glad to have it."

Mr. Harrison, who is the No. 1 architect, perhaps, in New York, who does all of the Rockefeller work, said to me:

Do not let anybody ever talk to you about changing the location.

He had to drop out because of illness of his wife.

I have accepted that judgment from every top man of experience in architectural work, whom we have had look into it.

Mr. OWINGS. Another advantage to the mesa over the flatland—there is not any flatland here, actually, for even the valley slopes—is that you can get surface underneath. There is no need for automobiles to come in here [indicating]. If you had a parade you could bring the very important people on the side.

But the boys substantially go everywhere on foot, but the services can be brought in below. There is a service road here, servicing the dining room [indicating] at a lower level.

Here is the service area here [indicating] which services the sciences and humanities.

The kitchen is down here [indicating].

Here is the service area [indicating] all along here. That keeps that below the level where the boys are and makes it much easier to handle the freight, traffic, and supplies.

ROADS

Mr. MAHON. Let me ask you where the road for sightseers is with respect to those buildings there.

Mr. OWINGS. Here [indicating] is the tangent. It touches that. That road on the west touches right here [indicating].

Mr. MAHON. Yes. That is over toward the mountains?

Mr. OWINGS. That is on the edge of the mountains.

Mr. MAHON. Yes.

Mr. OWINGS. It is in the mountains. They come in there to the administration building, if they have business. That would be the Academy at this point. That is their control point.

Secretary TALBOTT. Mr. Chairman, I would like to ask a question. How long is our peripheral road around the property?

Mr. OWINGS. John, do you know?

Mr. MERRILL. About 20 miles.

Mr. MAHON. Just keep that same map up there. Where will the professors live, and where will the main housing be?

Mr. OWINGS. About 2 miles from here [indicating].

Mr. MAHON. Two miles in what direction? Toward Colorado Springs?

Mr. OWINGS. Yes. That is because we have the major part—here it is [indicating].

Mr. MAHON. Do you propose to change a railroad, or do anything about that?

Mr. OWINGS. The plans at the present time do not call for the change of the railroad or the road.

Mr. MAHON. This view is looking west out toward the Pacific coast. What is there to the north?

Mr. OWINGS. Mr. Chairman, let us look at the photograph of Cathedral Rock.

Secretary TALBOTT. There is the sports building and the athletic field.

Mr. OWINGS. This [indicating] is the maneuver area. This [indicating] is Cathedral Rock. We are over here [indicating]. This [indicating] is open, rugged terrain in which they will do maneuvers.

Our Academy mesa is here [indicating], and you are looking at what you see from the Academy mesa here from the air.

We come up past this rock [indicating] to a ridge on which we stop our property, so nobody can build beyond that ridge.

Mr. MAHON. The better view from the barracks is toward the north?

Mr. OWINGS. Well, I think it would be pretty hard to say which is the best view.

Secretary TALBOT. There is a wonderful view to the east.

Mr. OWINGS. The advantage to north is orientation to the sun. In other words, north is the best side to have your windows.

Mr. MAHON. You have more windows on the north than you have on the south?

Mr. OWINGS. That is right, but I would hesitate to put a premium on that. I would say that the north and south views were equally wonderful, and the west. The east, of course, is just a plain. It just goes off into the plain. I do not think I would put any premium on it.

## EXTERIOR DESIGN OF BUILDINGS

Mr. MAHON. What do you think the exterior of these buildings should be, Mr. Owings? What is your present thinking?

Mr. OWINGS. Well, our present thinking is as follows: We have to have retaining walls, because we build our mesa into steps.

Mr. MAHON. You have that red stone?

Mr. OWINGS. We are using the stone that we got right there on the site for that.

Mr. SHEPPARD. Sandstone.

Mr. OWINGS. It is a red sandstone.

Mr. MAHON. Of what material do you visualize the sides of the buildings ought to be?

Mr. OWINGS. Masonry material, selected from the following points of view: Anything that will not stand up in weather would have to be eliminated. That is one of the troubles with marble.

For example, in the Middle West, in Chicago, you could not use a marble exterior. Out here you can use that pretty well.

It happens that the Tomb of the Unknown Soldier in Arlington was made of marble quarried not more than a couple hundred miles from here.

We have a sample being run, assembling masonry materials and evaluating them as to durability, economy, availability, and esthetic. The result will be the one that shows the best.

Maybe you will have a massacre occurring among the four consultants and ourselves, but we will come out with an agreement on which is which.

Mr. MAHON. If you had to vote now, what do you think you would probably vote for, personally?

Mr. OWINGS. Well, being in a profession of this kind, I would not vote, because I would say that I would want to know just which of those masonry materials would be the best. I am in favor of a durable, permanent material that shows the quality of the soil, so to speak.

It will help us with the glass and with the metal to get that contrast. We have always wanted to get this contrast between a rough, coarse material and a smooth, rich material such as limestone, marble, or granite, and glass and metal.

Which of those it would be I do not know. I would say there would be a wide variety. I would say we could easily get three different opinions from Saarinen, Belluschi, and ourselves, any one of which would be all right.

Secretary TALBOTT. But they will come up finally with a unanimous recommendation, before they come to me.

Mr. MAHON. And with the reasons why?

Secretary TALBOTT. What is that, Mr. Chairman?

Mr. MAHON. With the reasons why?

Secretary TALBOTT. Yes. On this approval of these buildings, I told them to go ahead. They are within 5 percent—the consultants have told me, and that I confirmed with Mr. Robert—they are within 5 percent of agreement on the exterior of these buildings. On the interior, all the foundations, like the plumbing, where the gang toilets are to be, showers, numerous phases of the rooms—everything is agreed on. Is that correct?

Mr. ROBERT. Yes.

Secretary TALBOTT. 100 percent.

Mr. ROBERT. Very few of the details of the interior layout, on convenience and economy, have not been already settled.

Mr. MAHON. What will be the wall structure? If one were walking down the corridor, what would he see on the walls?

Mr. OWINGS. Inside?

Mr. MAHON. Yes.

Mr. OWINGS. It will undoubtedly be a ceramic material for the reason of permanence and wear.

I forgot one point. We have many different buildings here. Everything is in a different position. It may be that one material will apply adequately to one, and to another it will not. In other words, if you take a place where the boys are going to be rubbing against the wall year in and year out, that will be a different material from the material at a place which will not be touched but will be viewed from a distance. One place could use a soft material and one a hard material.

I think this project is big enough to encompass pretty nearly every masonry material known to man, and still do it justifiably.

Mr. MAHON. Have you anything else to add, Mr. Owings?

Mr. OWINGS. No, sir; I do not think so, unless there are questions.

Mr. MAHON. Mr. Secretary?

CONSTRUCTION SCHEDULE

Secretary TALBOTT. Mr. Chairman, when we first discussed this matter we were to be given $2 million for our temporary work at Lowry. I cut that and asked only for $1 million. Not one dollar of that work will not be useful when the Academy moves on down to Colorado Springs.

I have set a "bogey" on this thing on time, that is very difficult for them to meet, but they can meet it, and if we go ahead and do not run into many times of indecision we can do it.

I want to be able to move in 2 years from this fall, because in that time we will have a class of 650 men coming in. The first class of 300 we dedicated a week ago. Next year we will take 450, and the following year we go to 650. We have only accommodations for the 750 up at Colorado Springs. So I do not want to delay this in any way.

I will proceed any way you gentlemen want me to proceed. I will come back, or I will show you the finals. I will do it any way you want, needless to say. But I would like to have this thing so that we can proceed orderly with the letting of these contracts.

The only contract we have let, I think, is $447,000 for some of our road work. Our utilities, airstrip, sewerage, and all of that ought to proceed right ahead, and the detailed drawings of these buildings I am going to authorize today, if you gentlemen agree, on all of the interior. Some of the exterior work you are still working with and does not have to be included.

We would like to let these contracts as quickly as possible. So I think the amount of money that we have suggested is the amount of money that should be authorized for us. Because if we do not move it will take a year from today before it is authorized. We cannot do anything in the way of plans—cannot advertise for bids—cannot complete our situation until you gentlemen have our next year's appropriation bill.

Mr. MAHON. Any questions on my right?

Mr. SHEPPARD. Yes.

Mr. MAHON. Mr. Sheppard.

ROADS

Mr. SHEPPARD. Looking at the picture as I am now, addressing myself particularly to the right picture, I can see that the top of the picture is north?

Mr. OWINGS. This [indicating] is west.

Mr. SHEPPARD. Where is the lowest large road? Is it south, east, or west? Where will your heavy transportation of the public flow by this institution?

Mr. OWINGS. East.

Mr. SHEPPARD. Now show me where that will be reflected, if you will, please.

Mr. OWINGS. Here [indicating] is the Academy. This [indicating] is the road down here. Unless you are talking about the main highway.

Mr. SHEPPARD. The thing I am asking you for, trying to get a concept in my own mind, is that you are going to have some highway immediately adjacent to this institution, and it will be a heavily traveled highway, comparatively speaking.

Secretary TALBOTT. Yes, sir.

Mr. SHEPPARD. There must be a road.

Mr. OWINGS. That is out here, sir [indicating].

Mr. SHEPPARD. In the immediate vicinity?

Mr. OWINGS. Yes, sir.

Mr. SHEPPARD. Let us consider your buildings there. If you had them in step formation, if I may say that, please, for the big one there, where is that road as compared with what you are delegating on that chart there?

Mr. OWINGS. Down about here [indicating].

Mr. ROBERT. Yes; way below.

Mr. SHEPPARD. If I were driving by that place—Mr. Public—would the view from that road be open so that I would get a visual reaction of what is depicted?

Secretary TALBOTT. Yes, sir.

Mr. ROBERT. Yes, sir.

As you come in from Denver, coming down the road—that big four-lane highway already there—you start seeing the Academy site from 7 miles away.

Mr. SHEPPARD. I see.

Mr. ROBERT. The first thing you see is Cathedral Rock. Then the mesa sticks out a little bit. All of a sudden you come to where you look around that. Then you see the Academy for a distance of 3 miles.

You are looking up into that place from this position here [indicating]. Here you come in from Colorado Springs. Here is the development. You really come down in great expectancy and anticipation.

Mr. MAHON. You are talking about Denver now?

Mr. ROBERT. Coming from the south, Colorado Springs. You start at Cathedral Rock, first, because it sticks up. Then you start seeing it in this direction [indicating]. You see it until you get way over here [indicating].

Mr. SHEPPARD. Nevertheless the view of the institution is a clear-cut view?

Mr. OWINGS. That is right.

Mr. SHEPPARD. And I get a reasonable slope from a right- and left-angle degree; is that correct?

Mr. ROBERT. In here for 3 miles. I have been down there for the last 10 days, showing it to my wife, looking at this location. That is exactly what you see.

These [indicating] are the two railroads, the Santa Fe and the Rio Grande. They come up what is known as Monument Creek Valley. Then they are designed to come in here [indicating].

These [indicating] are access roads. Then you come in finally in your visit to the Academy. You cannot come in below this valley. You come up here [indicating] and you stop at Cathedral Rock. Then if you are going into the Administrative Building you go down there. Then if you are proceeding around the exterior, and did not want to go visit, you would come all along the side of this mountain.

Mr. SHEPPARD. You are looking down on the project?

Mr. ROBERT. Looking right in on the project.

Mr. SHEPPARD. You are looking in? My question is: Are you looking directly in, or looking slightly down?

Mr. OWINGS. Slightly down.

Mr. ROBERT. In most instances right down on it.

Mr. SHEPPARD. In other words, you will get a complete view from the circular road, to get the panorama?

Mr. ROBERT. It is perfectly beautiful.

## WATER SUPPLY

Mr. SHEPPARD. There is one more question I want to get cleared up. Perhaps I am supersensitive on this, but I want to know definitely what the water situation is, not only at the moment but for the next 50 or 75 or 100 years. Let us be right on this, please.

Secretary TALBOTT. Mr. Sheppard, I have been scared about that. I was scared, because Colorado had rationed water. I told the Governor, and I told them all out there that they ought to be ashamed of themselves for being short of water. They had plenty of water back in the hills, if they would take advantage of it.

Mr. Robert is a civil engineer. I have put it up to the people a couple of times, and I said to him, "I want to know what this water situation is."

I do not know how many surveys we have had. Then Secretary Wilson also sent some civil engineers out there. I would like to have Mr. Robert, in just a few words, as few as possible, or as long as you wish, tell you about that.

Mr. SHEPPARD. There is only one thing I want to know about this. Naturally, I am water conscious, and perhaps unduly so. You are going into a terrific expenditure here, and properly so. It is one where you are projecting your thoughts into the future, which I think is a very worthwhile situation. One of the most fundamental things to the whole effort here is your water supply.

When you go into that water survey—and if I am wrong correct me, please—you have your riparian rights and all the intermingled rights that go into the water problem. Just how clear are they and how far have you gotten into that thing, so that you can say at this time, "Listen; there is water there available and already penned up so that we are not going to have any terrible water shortage for the next 75 years."

I say 75 years hypothetically. What do you say about that?

Mr. ROBERT. Every bit of information available to the engineers and the public has been gone into, starting back with the first settlement of the white man's first efforts about water.

When that came up a member of your Armed Services Committee investigated. They investigated on their own. Some of you gentlemen are acquainted with that.

We went into every possible detail. The Secretary insisted that the Colorado civilians do that. Of course, they were more or less selling the location. They were very anxious about it. They were put right on the spot about the water situation, and they made quite a development, which in our opinion can easily be doubled, without getting into any sort of trouble that I can visualize for the next 50 years or 75 years, as you say.

Mr. MILLER. Mr. Sheppard, will you yield, and ask how it could be doubled?

Mr. SHEPPARD. Certainly.

Mr. MILLER. How would you double it?

Mr. ROBERT. They have gone up towards the Continental Divide. There are certain pockets there and certain areas of water up there where, except for a very unusual use, you would not bother them probably for centuries. Nobody had any reason to go up there, Mr. Miller, because the water supply always is such that you go into the more economical ones and get your water, just like Denver is doing now.

As Secretary Talbott said, they had never gone in to make any new explorations of water for such great purposes as this because—why? they did not need it, to be brutally frank with everyone. The country is in a developing stage, all of it.

So it is my humble opinion, from everything we know about it, about Colorado Springs as an area, that without encroaching on Denver, and yet not giving any trouble to anybody else, as we can see it, we could double what they already have outlined.

From the Academy standpoint Mr. Talbott said to them,

Now, we want—

he had been advised—

We want 5 million gallons of water guaranteed to us on this site.

We do not need but 2 million gallons of water to carry out everything we are talking about today.

Mr. SHEPPARD. When you say "guaranteed," what is the extent of the guaranty?

Mr. ROBERT. To the extent that Colorado Springs allocated that amount of water for the exclusive use of the Air Force Academy in their development, so that they have first call on that water.

Secretary TALBOTT. After domestic use.

Mr. ROBERT. Yes, sir; after everything else; commercial use and water they were going to use down the road, or other developments and things of that kind.

Of course, all of us know, gentlemen, that if something very extraordinary happened and you had Colorado Springs develop to 250,000 or 300,000 people within the next 20 years, and various big things develop out there, and if there were some very unusual case of a shortage of water you would naturally have your Air Force Academy, like you would have everybody else, in that situation, having to sit down and say, "Now, what are we going to do? How will we ration for this little period?"

Mr. FLOOD. Will the gentleman yield, Mr. Sheppard?

What will develop if and when the Army builds up Camp Carson to a permanent station and a division headquarters, a division plus, or a permanent base, which is probably going to happen in your backyard?

Mr. ROBERT. Well, gentlemen, you are talking only in terms of a camp down there, a fort, in the neighborhood of 30,000 as a maximum. Of course, that is a really big camp, as all of us know. That is a big development. Now, I do not see how, with the present status of water, we have got anything to worry about on the water proposition.

Mr. SHEPPARD. What is the present population within the Springs area of the service itself, populationwise, please? Let us figure that Camp Carson carries 30,000 maximum. We will assume that hypothetically altogether the present population demand in the Springs on the water supply is how much?

Mr. MERRILL. About 60,000 people.

Mr. SHEPPARD. Sixty thousand?

Mr. MERRILL. That includes suburban.

Mr. SHEPPARD. What do you figure they are going to bring in, on the uniformed and civilian population, on your own?

Secretary TALBOTT. A maximum of 8,500.

Mr. SHEPPARD. What is the contributing population that is going to obviously settle within that area in the next 10 years? I am not talking about the Springs; I am talking about the roadside properties and whatnot that all go into a contribution of this character.

Secretary TALBOTT. I do not think we will get practically any of that, sir. I do not think we will get 500 people, because we own both sides of the roads for several miles below. I am fairly sure of that.

American Machine & Foundry has a strip of land that is zoned so that they cannot let the public in. No housing, I believe, will be involved, Mr. Sheppard. I think you will get more down at Camp Carson than will come up toward us.

Mr. ROBERT. We figured on 10,000.

Mr. FLOOD. Will the gentleman yield again?

What do you think will happen eventually, Mr. Secretary, so far as new posts are concerned, on the development of the Continental Defense Command in the area? Is that a problem to think of in the next 25 or 30 years?

Secretary TALBOTT. We are pretty well set. I do not think we will enlarge that, Mr. Flood.

Mr. MAHON. Mr. Whitten?

Mr. WHITTEN. Mr. Talbott, I received in yesterday's mail a postcard from a lady at Colorado Springs, where she says she wishes you would come out and see the dead trees in Colorado Springs and let her tell you about the rationing of water in this area last year, and tell you what is facing them again this year.

Now, I have listened to the statements here about this selection. Apparently everybody is worried about water, but you are going ahead. Every time I raise a question about the water supply somebody says, "You have gone too far."

Secretary TALBOTT. I am just not worried about the water. I think there is plenty of water. I think they ought to be ashamed of themselves out there to have been short of water last year.

Mr. WHITTEN. That may be, but I have been in Congress for a good many years. and half of our time, it seems to me—with the

greatest of kindness—is taken up with the folks in the West trying to scrap among themselves as to who will get the water, because water is short all the way around.

If you take the water out of the mountains you keep it from going into the rivers. If you take it out of the rivers you keep it from going into the land. If you take it out of the land, you lower your water table

I have served on a committee where for 10 years I have heard the western story. There is not enough water for all they already have, and they scrap among themselves all of the time.

I wonder if we could have in the record here whatever statute there is in Colorado governing water rights.

Mr. OWINGS. We can supply you with that.

Mr. WHITTEN. I would like to have that.

(The following information was supplied later:)

The water rights of Colorado are covered in chapter 147, entitled "Water Rights and Irrigation," Colorado Revised Statutes, 1953.

Mr. WHITTEN. On the question of water, it may be that I am disturbed more easily than some others, but I am seriously disturbed. If you have all of the water you want the other folks, who are already scrapping out there for water in this Congress, will have that much less. It is just as simple as that. The Federal Government has a powerful way of taking what it wants, and the local communities have an unhappy faculty of seeking something big to put them on the national map and overlooking what the other effects are going to be.

The point I am making now with respect to this Academy, for the record, is that the presentation you have made to us today, the pictures you have shown, while they are in more detail and while you have had Mr. Owings, a very splendid witness, present them, show the same identical things we acted on the other day. There is nothing new. It is the same appearance, the same program, and the same plan.

Secretary TALBOTT. It is not the same as they gave you before. The architects and consultants were in a session out at Colorado Springs, and they finished that few days' session Sunday night and flew down here Sunday night with their latest agreement. They could not have told you a week ago they had agreed on a great many of these features.

CHANGES IN PROGRAM

Mr. WHITTEN. I will ask them to show me the modifications. I am not talking about further plans. What modifications have you made since you were last before us and the committee wrote a report refusing to go ahead with the money? I am talking about modifications, not filling in.

Mr. OWINGS. May I answer that?

Secretary TALBOTT. Yes, sir.

Mr. OWINGS. We have modified the academic building, 1 of the 2 major buildings on the site.

Mr. WHITTEN. In what way?

Mr. OWINGS. From the standpoint of the amount of exterior glass.

Mr. WHITTEN. I beg your pardon, sir; that was done prior to our last hearing, and it is so shown in the record.

Mr. OWINGS. Well, this is the specific modification. I do not think that was shown.

Mr. WHITTEN. That is filling in. I am asking what changes there are.

In other words, I am trying to point out that your appearance here is an appeal on the same record with the same figures and the same buildings, that the committee refused to act on. That is correct, is it not?

Mr. OWINGS. I understood that at the last meeting there was no definite plan. It was stated there was no definite plan.

Mr. WHITTEN. That is right. And today you have not filled in with this material. Take any of those 4 or 5 factors; esthetics, wear, and everything. You have not even filled it in in the presentation today.

We also had in our testimony before that the glass had gone out. I am asking what modifications there are. I am just showing that this is an appeal from a decision of the committee on the same record of facts.

That is correct, is it not? Mr. Ferry was there the other day, and these other gentlemen. Mr. Merrill was there. I just want to see if there is an appeal on the same record.

Mr. MAHON. Why do you not answer, Mr. Ferry?

Mr. FERRY. Mr. Whitten, I was present at the meeting of the consultants over the weekend, the last weekend, in Colorado Springs, Friday, Saturday, and Sunday, working on the details. The changes that have taken place since the prior meeting 4 weeks before were substantial.

There was a major revision of the basic plan of this barracks building. That was a major revision.

There was a minor revision of the proposed exterior of the barracks building in the matter of louvers, glass, and masonry relationships.

There was a complete and thorough revision of the whole fundamental scheme of the library, humanities, and sciences building, by the addition of exterior galleries and the elimination of glass which was formerly contemplated in the prior presentation.

Mr. WHITTEN. But in your presentation to us you told us that the glass had gone out.

Mr. FERRY. I told that the glass was in the process of being reduced, sir, because we had not reached any firm approved plan as yet.

Mr. WHITTEN. So far as the record is concerned, to keep this record complete, the pictures which you have published and which were presented to us before, and the pictures you have today—there is no substantial difference in the general appearance?

Mr. FERRY. There is a substantial difference, sir, in the fact that the former pictures were photographs of models which contained a large amount of glass exterior.

Mr. WHITTEN. The same general outline, except for that?

Mr. FERRY. The shape of the buildings is substantially the same.

Mr. WHITTEN. And the general appearance is the same?

Mr. FERRY. The character of the buildings is substantially of the same type.

Mr. WHITTEN. Personally, in view of having listened to this water problem in Colorado and in the West, and having had to do with it again this year, and with pending bills on the floor, I do not see how I can vote for this on the site, in view of the water problem. I may

be more disturbed than some, but, anyway, in raising that question they say I am too late.

If we appropriate this money now for the construction of this Academy then we have put it in Mr. Talbott's hands, and whatever the reaction of the American people is, however strongly they may feel about it, he can go right ahead, and if he goes ahead with the foundations and the laying of all of it what we are buying is the pictures you show us with certain minor changes that may occur, because when you start out on something you are bound to end up with substantially what you start out on.

So if we provide the money we are buying what you just demonstrated; and, as I recall it, the record was that there is not a 5 percent difference in the exterior appearance, between the consultants and the architects who have the primary job; so we are appropriating for this thing and you are in asking to repeal the request in our committee report the other day that the American Committee on Fine Arts be consulted.

Secretary TALBOTT. Mr. Whitten——

Mr. WHITTEN. I am just trying to keep the record straight. If we give you the money, we have turned over the right to do this and the the right to go ahead and build the buildings. Many may believe that is sound, but I want to keep the record straight. If we do that, as we have done on the site, we just turn you loose.

Secretary TALBOTT. Mr. Whitten, I have got this Committee to select the architects. We have selected the best consultants. We have the architects' association of America on this thing.

I am not an architect. I am not going to put my judgment on taste or what I think on construction of these buildings to a test without the best consultants I can get.

Mr. WHITTEN. You have told us who they were.

Secretary TALBOTT. I know; therefore I ask you this question: What can I do to safeguard the American people on the expenditure of this money in a safer way? What can I do to protect you or protect myself, other than to get the outstanding men in, who know this business in the United States?

Mr. WHITTEN. Well, there are 2 or 3 things involved, In the first place, as everyone says, architects differ among themselves. There has been testimony here today—and I am not expert in the field—that the Gothic architecture was the modern architecture of its day. As the result, things were built with that kind of architecture in its day. Therefore, in this day you want to build the American architecture of today; but I do not know of a public building of any prominence that looks like this.

I think, just as a layman—and I am not talking about the business——

Secretary TALBOTT. Well, sir——

Mr. WHITTEN. It looks to me like in America today, as I know it—and I have been all over the country—it is strictly futuristic, because it certainly is not in common use, for this type of public building from my observation, and I speak only of that.

Secretary TALBOTT. May I say——

Mr. WHITTEN. I would beg to differ. I would say they are going far beyond Mr. Owings' illustration that the folks who built the Gothic architecture, because it was modern. Here you are building some-

thing you hope to make modern by setting it up in this type of national monument.

Secretary TALBOTT. We have one man here who is an expert. I would like to have his observation. Mr. Purves.

Mr. PURVES. Mr. Chairman, I can only hark back to that statement which I wrote and which the Secretary has very kindly read into the record. We would stand by that and support the fact that he has followed the procedures which are entirely right.

Mr. WHITTEN. You misunderstand me. There is no such charge as that. You have labored and brought forth certain buildings here that do not look like America. We do not know whether we want to buy them or not.

Secretary TALBOTT. You said it was futuristic. I said it was modern. I would like to have Mr. Purves elaborate on that.

Mr. WHITTEN. I said to me it was, and I started off by saying I am not an expert.

Mr. PURVES. I think, Mr. Chairman, I may have some claim to stating that I am something of an expert in this, and I would say that these gentlemen have produced a very fine design and a very fine piece of architecture, and one I think all of us, including you, sir, will be proud to see when it is finished. I think that the term "American architecture" has been introduced into this testimony. I will assure you from my point of view this is very fine American architecture done in the best spirit of our country at this time.

Mr. WHITTEN. It is all a matter of opinion, but all of you have said that you can get any certain group of architects and they will come up with something different. In fact, we had some with different views before our committee, as you will recall, and they had a whole lot of things to say about fees being bid and other things, to center this work in the place where it is centered, and things of that sort. There were some rather serious charges. I do not know what the facts are.

Secretary TALBOTT. Then they came around and made a proposition to the architect to agree with me and go 50–50 and he would stop criticizing.

FEES

Mr. WHITTEN. I would like the record to show all fees paid by the Air Force, to the architects and anyone else for any purpose in connection with the Academy.

(NOTE.—The information requested will be found on p. 49.)

Mr. SHEPPARD. Will the gentleman yield?

I am impressed with the same philosophy of procedure here.

Mr. WHITTEN. That is all for me, Mr. Chairman. I would like to have the record show this is in practical effect and in all substantial ways the same exact things that were presented to us the other day.

Mr. MAHON. Off the record.

(Discussion off the record.)

Mr. MAHON. Mr. Sheppard.

Mr. SHEPPARD. When you get done with your day's work you find you have compromised on many issues. This to me may be a compromise in architectural procedure as against the antiquated past and modern present. If I were to choose by and between the two I think I would buy this in preference to some of the antiquated concepts architects still favor in Washington.

Mr. FLOOD. Mr. Chairman, are we going to answer this rollcall?

Mr. MAHON. That is the point. We do not want to keep our friends here. We snapped you out of the air yesterday.

Mr. OWINGS. It is well worth it.

Mr. MAHON. We are always doing that in Washington.

Mr. OWINGS. I am at your service.

Mr. MAHON. Nobody on this side has had any opportunity to interrogate the witness at all.

Mr. FLOOD. May I suggest that we answer the rollcall and come back.

Mr. MAHON. Can you gentlemen bear with us about 5 minutes?

Mr. OWINGS. Certainly.

(Thereupon a short recess was taken.)

Mr. MAHON. The committee will come to order. Mr. Scrivner, do you have some questions?

Mr. SCRIVNER. Yes, Mr. Chairman.

Mr. MAHON. Will you proceed.

SERVICES OF MR. ROBERT

Mr. SCRIVNER. Mr. Robert, you made some statement about your connection with the Secretary and with Skidmore, Owings & Merrill. I could not quite understand what that relationship was.

Mr. ROBERT. I am doing as a firm, Robert & Co. of Atlanta—as a firm we are doing a certain portion of the engineering work under Skidmore, Owings & Merrill. They are the architect-engineers on the job.

Mr. SHEPPARD. The prime contractors?

Mr. ROBERT. Yes, sir; they are what we call the prime contractors.

Now, personally, individually, Mr. Talbott and I have known each other for 35 years, and he has known me in my profession, and things I have done. He asked me to act as his consulting engineer, general consultant on the overall picture of seeing that his Department got what they wanted, and that we watch out for the pitfalls.

Mr. SCRIVNER. Well, that looks a little anomalous to me; to think you would be tied in with the prime contractor personally and probably financially interested, and yet at the same time be expected to give impartial advice to the Secretary. It is something I cannot quite understand.

Secretary TALBOTT. Mr. Scrivner, I have known Mr. Robert for a long time.

Mr. SCRIVNER. I do not doubt that.

Secretary TALBOTT. He is close by here. I asked him to assume a responsibility to see that I was posted on all aspects of the thing, and to act as a personal consultant working with the architects and consultants.

Mr. SCRIVNER. But you had three other consultants.

Secretary TALBOTT. Mr. Robert, of course, had said that he would take no fee for anything.

Mr. SCRIVNER. I know, but——

Secretary TALBOTT. I just asked Mr. Robert to act as a personal consultant to me. The other three are known as the three consultants.

Mr. SCRIVNER. It just seems anomalous to me. I do not know whether——

Secretary TALBOTT. I asked Mr. Robert to review as a civil engineer, to review the water situation.

Mr. SCRIVNER. I am coming to that now.

Secretary TALBOTT. All right.

WATER SUPPLY

Mr. SCRIVNER. Last year water was short in Colorado Springs and it is short this year. What sort of an arrangement or guaranty does the Air Force have as to the 5 million gallons? First, is that 5 million gallons a day?

Secretary TALBOTT. A day; yes, sir.

Mr. SCRIVNER. All right. What guaranty does the Air Force have, and what is behind the guaranty that you are going to get 5 million gallons?

Secretary TALBOTT. We have first call on the water after their domestic use in the city.

Mr. SCRIVNER. They do not have enough for domestic use today.

Secretary TALBOTT. They have enough for domestic use, except gardens and so forth.

Mr. SCRIVNER. They are rationing water out there today.

Secretary TALBOTT. Well, the big supply—the 36-inch pipeline—they are bringing through, but it has not come in as yet.

Mr. SCRIVNER. Has construction on that started?

Mr. OWINGS. Yes, sir.

Secretary TALBOTT. Oh, yes.

Mr. SCRIVNER. How far along is it?

Secretary TALBOTT. It is almost finished.

Mr. ROBERT. Practically ready.

Mr. OWINGS. It is through the Ute Pass. I have seen it.

Mr. SCRIVNER. Off the record.

(Discussion off the record.)

Mr. SCRIVNER. We are now told that not only has the city guaranteed 5 million gallons over domestic use, but the city of Colorado Springs is now actually engaged in the construction of a 36-inch pipeline conduit down Ute Pass, which they believe will give how many million gallons of water a day?

Secretary TALBOTT. May I read this for the record?

Mr. SCRIVNER. I think water is one of the most vital things you have. Without water the Academy is no good.

Secretary TALBOTT. I would like to read this report in the record:

(*a*) The Blue River collection system of tunnels and pipelines, getting the runoff from 18 square miles of mountain area, at an elevation 11,000 to 14,000 feet, with delivery of 16,480 acre-feet annually through the Hoosier Tunnel to Montgomery Reservoir to the South Platte River watershed, practically constructed, with delivery started in 1952, to be wholly completed in 1957.

That is the Blue River.

Montgomery pipeline, 36-inch line, 62 miles long, with a capacity of 19 million gallons per day, conveying Blue River water to the existing and proposed north slope storage reservoirs of Colorado Springs. Constructed and part operated in 1953, with remainder to be completed in 1957.

A 24-inch pipeline and tunnel conduit with a capacity of 10 million gallons per day to convey the Blue River and Pikes Peak water and Colorado Springs Reservoir on the West Mountain Creek, to be completed in 1956.

A 70-inch pipeline with a capacity of 10 million per day to convey water for the Air Force Academy and the north portion of Colorado

Springs down to an elevation of 7,700 feet to be completed in 1956 with an additional pipeline with a capacity of 5 million capacity per day from an elevation of 7,700 feet to the south boundary of the Air Force Academy. Those are the four reserves that are being put in.

Mr. SCRIVNER. With the Air Force Academy to be completed in 1956, how near complete is that?

Mr. MERRILL. It is on schedule. I do not have the exact schedule but it will be available long before we need the water.

Secretary TALBOTT. We can supply the accurate date for you, Mr. Scrivner.

Mr. SCRIVNER. That is just one of the other points that I wanted to bring out now. Now, a year ago, there was a proposal that indicated some doubt that there might be enough water for all purposes and the Air Force Academy, and which proposed that there would be dams constructed down on Monument Creek. What has happened to that? Nothing has been said about that this morning.

Mr. MERRILL. We have explored with Mr. Robert the entire water situation, not only as to the supply from Colorado Springs but as to other possibilities of developing local sources of irrigation. We do not propose to dam Monument Creek because we do not have the water rights to do it.

Mr. SCRIVNER. That is what I am wondering about, and what I was thinking about when we talked about it last summer.

Mr. MERRILL. But we have—Mr. Robert, in addition to designing the domestic water supply, the company has made a very careful study of the additional supply for irrigation purposes, which includes the use of sewage output and the possible mixture of that with the Colorado supply which figures show that for the Academy, as now envisioned, we will need somewhere between 2 million and 3 million gallons of water from the Colorado Springs source.

That pipeline which we have gone over with the Colorado Springs engineer, we have detailed the piping network where we take off from it, and we have designed our own main across the high point of the Academy site and we are taking only 25 percent of the water that will be provided by that city main.

The rest of it goes to development in North Colorado Springs, and when the pipeline is done, the new communities and Colorado Springs will have a much better water supply at that time, in addition to the Academy requirements.

The fact has been brought out by Mr. Robert and others that it is not so much a question of tapping new reservoirs in the mountains as it is avoiding the waste of the water which they have been getting from these reservoirs for so many years and which have been permitted to come through this tunnel and flow down the river where much of it is lost through evaporation and much of it is wasted down the valley during the storms and wet season when the people down there do not want it.

The new reservoir at the Hoosier Tunnel will serve that water pipeline as a substitute for the river and will recover a lot of water that has been wasted.

That is the conclusions that were reached by every engineering report we have had, which not only includes Mr. Robert but Mr. Robert's company and from the Colorado engineers who are very familiar with the problem.

Mr. SCRIVNER. Are you subsidizing any of that construction?

Secretary TALBOTT. No, sir.

Mr. SCRIVNER. You are not making advance payments to Colorado Springs?

Secretary TALBOTT. No, sir.

Mr. SCRIVNER. If I understood you correctly, you have made some considerable change in what was discussed here a year ago in the statement that you are not going to obtain either the highway or the railroad.

Secretary TALBOTT. Yes. We did that——

Mr. SCRIVNER. How are you going to avoid that?

RUNWAY

Secretary TALBOTT. Instead of putting in a possible 15,000 foot runway, or laying a runway out so we could make a 15,000 foot runway, we are going to put in a runway of 8,800 feet, which is ample for everything except the jet bombers at the present time.

Mr. SCRIVNER. And you have got Peterson Air Base there, so why do you need it?

Secretary TALBOTT. We do not need it and that is why I moved it back and saved us $2.5 million. The concept which they had, I thought was too elaborate and too expensive.

Mr. SCRIVNER. Well, apparently we agree on one thing. That was the feeling that I had, that we had Peterson Air Base there to bring in any big planes you wanted.

Secretary TALBOTT. I agree with you; I agree with you on that.

CHANGES IN DESIGN AND PLANS

Mr. SCRIVNER. Yes, we agree on one thing, at least.

What changes exactly have been made in the design and plans since just about 2 weeks ago when Mr. Merrill was talking to us; just exactly what changes have been made in the last 15 days?

Secretary TALBOTT. I think it is more the finalizing of——

Mr. SCRIVNER. I mean what finalizing are you referring to?

Secretary TALBOTT. Finalizing—to reduce the glass——

Mr. SCRIVNER. They said they had reduced the glass.

Secretary TALBOTT. Mr. Scrivner, I am tied up on some other matters and could not be present at that meeting. I am very sorry I was not. I believe that we have finalized the thing; brought down the glass; we have brought down—we have brought the plans up to a point where they are nearer the point of complete agreement with all of the consulting architects, Mr. Saarinen and Mr. Belluschi, and they have just spent 3 or 4 days out in Colorado Springs. Their meetings were finished on Sunday night and the three consultants were here with me yesterday and I talked to them in my office and I would have had them here if we could have had, today, to get them to give their full views of the report.

Mr. SCRIVNER. Now, what plans up to now are absolutely firm upon which you have put your O. K.?

Secretary TALBOTT. I am going to put my O. K.——

Mr. SCRIVNER. I asked the specific question, what firm plans have you now that you have put your O. K. upon?

Secretary TALBOTT. I told them yesterday that I would approve—

Mr. SCRIVNER. In other words, the answer would be none?

Secretary TALBOTT. No, sir. I have verbally approved, I have not written a letter giving the approval, to go ahead on those two buildings, the dormitory and the Academy building with the exception of certain parts of the exterior which amounts to less than 2 percent of the money value of the proposal.

There are some little details of the exterior which the architect and the consultants have not yet finalized their thinking on the plans so they can go ahead with all the details of the building; all the details of the building are completed with the exception of some of the exterior items.

Mr. SCRIVNER. How much is that building going to cost?

Secretary TALBOTT. The complex in there is about $25 million total, but the 2 buildings will be a little less. The dining hall we have not finalized; nor have we finalized the buildings at the top, the assembly hall and the executive administrative buildings. We have not touched the chapel. We have not touched the buildings on the right [indicating] which are the athletic buildings.

Mr. SCRIVNER. When are you going to have all of those that we are talking about; when are you going to have the details?

Secretary TALBOTT. I do not know. They tell me it will be about 60 days; they will have them at that time, but I want to go ahead with these 2 big buildings because I want to try to get enough space set so that we can get in in the fall of 1957. Now, I want to bring out——

Mr. SCRIVNER. Let me interrupt you there if I may.

Secretary TALBOTT. Yes.

### CONSTRUCTION SCHEDULE

Mr. SCRIVNER. What is so magic about the fall of 1957? We have discussed this before. I felt a year ago, and I feel today, that you are far too optimistic. I felt a year ago and I feel today that you would be better off just to continue next year with another $350,000 and the third year with $350,000; and have it dead certain that you can move right into it without a lot of fuss and turmoil, in 1958, which would give you the first entering class for their final year in this Academy.

Secretary TALBOTT. Mr. Scrivner, it may be advisable and it may be necessary but if you do, you are going to spend a lot more money on Lowry.

Mr. SCRIVNER. I do not think so if you will hold your entering class down. You do not have to double it each year.

Secretary TALBOTT. All right; do not double it, but even if you hold it to 300, you are going to have 900 men there in 3 years. And I think that is going to cost us a lot more money with the capacity, with the figures that we have got of 700 men; and I think, on your whole investment, your whole activity will be slowed down and it will be done at a great expense.

### CHANGES IN DESIGN AND PLANS

Mr. OWINGS. Mr. Scrivner, there is one thing I would like to add if I may.

Mr. SCRIVNER. Yes.

Mr. OWINGS. You mentioned 15 days, what has happened in 15 days. I would like to explain that it was not 15 days. When they had the hearing before you——

Mr. SCRIVNER (interposing). It has not been much more than 15 days.

Mr. OWINGS. When you had your hearings but the time the consultants and the architects have been at work on this thing, through the period that they used to finalize, that started in May, about May 15, immediately after the meeting in Colorado Springs, and it has been going on continuously since that time. We had a meeting about a month after that with the consultants. And out of that meeting, we decided on another meeting on July 15, at which time we reached our finalization and made our report to the Secretary on Monday, yesterday. But it was not 15 days that we have been working. I would like to have the record show that the actual time was between May 15 and——

Mr. SCRIVNER (interposing). But your partner was in here before this very committee about 15 days ago.

Mr. OWINGS. That is right.

Mr. SCRIVNER. And at that time the designs had not been completed.

Mr. OWINGS. That is correct.

Mr. SCRIVNER. And he said so in so many words.

Mr. OWINGS. That is correct.

Mr. SCRIVNER. All right. Now, 15 or 17 days later, we are told that the plans are complete. Now, it just does not stand to reason, that as good as you folks are reputed to be, you just do not work quite that fast.

Mr. OWINGS. That is right.

Secretary TALBOTT. We have not made the plans in the last 17 days or 15 days, but they have agreed on the details, on the two buildings, and those set the pattern for the entire architecture of that group.

Mr. OWINGS. It has been 2 months that we have been at work, out of which came a final result, as reported——

Mr. SCRIVNER (interposing). Of course, it is not up to this committee——

Mr. OWINGS. I just wanted the record to show that——

Mr. SCRIVNER. It is not up to this committee to make the presentation or the report. All we can do is to work on what we have; if you do not make a good presentation, that is not our fault.

HOUSING

Now, in this discussion 2 weeks ago, there were some other proposals made, all to the effect that perhaps the Superintendent's house was going to run around $90,000 to $100,000 and that the homes of the professors were going to run around $45,000 to $50,000. I do not know very many professors in any university in the country who can afford quite that. How far have you gone on those things?

Secretary TALBOTT. The total amount that we have discussed with the Bureau of the Budget, we have discussed it among ourselves, and we have discussed it in every way we could as to how many housings

should be above the regular housing situation we have on our bases. The total additional housing figures that we have for the housing of 8,500, less the five to six thousand people—5,000 people to 6,000 people—6,000 people, I guess it is, above our total population; we have 8,500 and 2,600 are supposed to be students. So we have there 6,000 people that we are going to house.

Mr. SCRIVNER. Many of them are airmen?

Secretary TALBOTT. The total of that will be $3 million more than if we put in the cheap housing straight through.

Mr. SCRIVNER. Well, I do not think you have quite answered the question.

Secretary TALBOTT. We had the 90,000 in, and two houses I think for $45,000; and then there are a certain number—$32,000; if you will allow me to give the record, I can give it to you exactly.

The superintendent's house, 5,000 feet—one at $90,000; the dean, there are two of them at $60,000. And the professors' houses, 44 of them at a cost of $18.20 per square foot—44 of them at $16,000, which would be about $27,500—no $27,000 for those.

We have the assistant professors down lower; that is 112 houses at $3,000——

Mr. SCRIVNER. No, you do not mean $3,000——

Secretary TALBOTT. No. $3 million. We have the instructors at $14.40 a square foot, 123 of those. So that our total housing project out there is $7,737,000.

Mr. SCRIVNER. Well, the presentation this morning is better than the one that was made 2 weeks ago.

I probably would be a little more careless with my own money than I am with Uncle Sam's and I can't help but wonder if I were in the position—which I am not—to contract perhaps for a $55,000 or $65,000 home of my own, if I would not want to have more complete detailed information and specifications than I now have on a $125 million program. I am quite sure that I would. I would want to know exactly what I was spending my $50,000 for; I would want to know what—not only what was on the outside, but what was on the inside, and I would want to know many, many things that I do not know about all of this.

Secretary TALBOTT. I would like to know that, and if we put down this bunch of housing which they have estimated, I want to know just what the details are too.

Mr. SCRIVNER. I am just getting a figure down to something I can understand; $50,000. This $125 million is just a little beyond my comprehension, in the way of construction. But if I were spending—even though I had an architect in whom I had absolute and explicit faith, I still would not care to hand him a check for $50,000 on a rather hazy setup and say, you just go ahead now and do the job.

Secretary TALBOTT. I am sure we will not, Mr. Scrivner, you are correct.

Mr. SCRIVNER. That is just about what you are asking us, is it not?

Secretary TALBOTT. Oh, no. Every one of these has to come in with the unanimous approval of the architect, and then they come into my office where our group sits down and analyzes it and see whether we approve of the design. These are just estimates.

Mr. SCRIVNER. Well, I will put one more step in my little simple problem of building a house, and even though I had great faith and

trust in the man occupying your position, and say maybe he is a good friend of mine, and I would say, instead of giving him a check for $50,000, I would—instead of giving the architect the check for $50,000, I would give him the check for $50,000, and say, "If you think the architect has done a good job, then you give him the check.' You are asking us for $75 million for the first payment of $125 million, and I do not know what else, and I do not think anybody else can tell.

Secretary TALBOTT. Well, Mr. Scrivner, I believe that I told this committee that I thought this was ample, that we—that if we could build this Academy for less, we will, and you will probably hear of our having sculptors out there who will be designing and sculptoring and doing other planning on the monuments that we are planning, the gateways that we are planning——

Mr. SCRIVNER. I forgot to ask about the gates.

Secretary TALBOTT. I beg your pardon?

Mr. SCRIVNER. I remember hearing something about the gateways; what about them?

PRIVATE CONTRIBUTIONS OF FUNDS

Secretary TALBOTT. Well, I have got the money which is being contributed by the people who wanted to make contributions to the Academy. I can give you the name of the man——

Mr. SCRIVNER. I do not care about the names. If you say he is going to make the contribution——

Secretary TALBOTT. Mr. Grover Loring, one of our great——

Mr. SCRIVNER (interposing). So far as we are concerned, it will not be appropriated funds and if they are not appropriated funds, I do not know whether we have any say about it.

Secretary TALBOTT. Well, it will not be appropriated funds, but certainly I am not going to take money for buildings that you do not approve of our building. Mr. Lawrence Rockefeller told me that he would like to give us something out there, say $150,000 or $200,000——

Mr. SCRIVNER. Yes.

Secretary TALBOTT. There are a lot of nice people who would like to do things like that.

Mr. SCRIVNER. And I think it is good that they should for the many things that they can do. Now, it is their money and if they want to do it, that is good. There are many of those things they can do. But when it comes down to the nonessentials, we would not have any business of spending the taxpayers' dollars for it.

Secretary TALBOTT. Nor would I recommend that you do pay taxpayers dollars for it. That is why I turned to the outside.

Mr. SCRIVNER. I think those people are to be commended for it.

Secretary TALBOTT. Then we have the golf course and the clubhouse, three-quarters of a million dollars. A group in Colorado has said that they would like to provide the golf course and Mr. Maytag, whom you probably know, a great fellow out there, has taken over the job and he and Jones, the architect, the golf course architect, are laying this course out, and they are getting their own sketches of the clubhouse and they are going to put up the money for that and build it.

Mr. SCRIVNER. I believe that is all, Mr. Chairman.

Mr. MAHON. Mr. Ford.

Mr. FORD. No questions, Mr. Chairman.

Mr. MAHON. Any further questions, gentlemen?

Mr. RILEY. Mr. Secretary, I understand this water is to be supplied to the Academy out of the domestic consumption, after that consumption has been taken care of. Now is the growth out there of this community such that it would use up all of the water for domestic purposes? What protection do we have for the Academy, what assurance do we have that the water supply will be furnished us?

Secretary TALBOTT. All we have is the assurance from the city and from the governor of the State; the city government may change and the State government may change, but we have first call on 5 million gallons of water after the domestic requirements of the city are met.

Mr. RILEY. What protection do we have if the domestic requirements are such as to use all the water there?

Secretary TALBOTT. They could not unless they had a population of 150,000 to 200,000 population, or even 300,000.

Mr. RILEY. Is it conceivable that that might happen?

Secretary TALBOTT. I think it is inconceivable that it will happen. They are allowing no industries in the community and we have been given a guaranty of twice as much water as we think we will need for this operation.

Mr. RILEY. Very frankly, Mr. Secretary, I think we should have some protection concerning this domestic consumption of the water, when we think of the amount of money that we are putting into it.

Secretary TALBOTT. I would like to have that, but we cannot get that at any place in the world. I know, I went back to the Governor and the mayor of Denver, and they have got a couple of enormous lakes north of Denver—I do not know, some 20 to 30 miles—and they know that they can tap those lakes, so that they can bring in twice as much water into the city of Denver, or 3 times as much, and if it were necessary, a pipeline could be brought down from there. I have flown over those lakes with some of you men. I do not know whether Mr. Scrivner was with me or not, but I have flown around the Pikes Peak area and looked over those reservoirs up there, and we are going to have a lot of water available.

This year they have had a lot of heavy snowfalls.

Mr. RILEY. I happened to be on the Public Works Committee and as the gentleman from Mississippi, Mr. Whitten, brought out a while ago, one of the biggest headaches we have on that is the conservation of water in the Western States, and the use of it, and I simply wish to know that we have some protection there.

Secretary TALBOTT. I do not know what else I can do to guarantee it. The engineers say there is twice as much water as we can ever need. We even know that we can turn the taps, they can turn and tap some of the water from the Denver area. I know that we can get a certain amount of water from wells on our own property, and we are going to put in a certain number of wells and we are going to put in a complete sewage-recovery system as a protection, so that every drop of water we use for washing or for any operation will be caught in the sewage disposal and that water will be treated, purified, and brought back into use again.

Mr. FORD. Will the gentleman yield?

Mr. RILEY. Certainly.

Mr. FORD. What is your estimated cost of the contemplated water system, under the plan you have?

Mr. ROBERT. Our contemplated water system for the Academy itself is taking the water at the southwest corner of the property, which is being delivered pretty quickly, and distributing it over the area of the property.

Mr. FORD. How much will that program cost?

Mr. ROBERT. Do you have those figures?

Mr. MERRILL. About $3.5 million for what you call potable water, and about $2 million for irrigation.

Mr. FORD. In other words, $5.5 million?

Mr. MERRILL. Yes.

Mr. FORD. That is the total estimated cost for providing all of the necessary water for the contemplated Academy?

Secretary TALBOTT. And the housing.

Mr. MERRILL. And the housing.

Mr. FORD. I am talking about the whole installation.

Secretary TALBOTT. Yes. That is water for the whole 17,500 acres, including the pumping plant; it includes the reservoirs and all of the pipelines, down to the small lines that run down through the residential street areas.

Mr. FORD. That is the cost that you can foresee under any conceivable contingency, under current circumstances, for the whole operation of the Academy?

Mr. MERRILL. That estimate is very firm, and much of the lines have been laid out and some of them are nearly ready for contract.

Mr. FORD. Thank you.

### COMPLETION OF PROJECT WITHIN AUTHORIZED AMOUNT

Mr. RILEY. I have two more questions. One is this: Have you proceeded far enough with your investigation and estimates so that you can assure this committee that you can complete the contemplated project for the authorized amount of money?

Secretary TALBOTT. Yes.

### FUNDS NEEDED FOR 1956

Mr. RILEY. My next question is: How much money can you use and proceed in an orderly fashion; that is, how much money will you need by the end of the fiscal year 1956?

Secretary TALBOTT. Our request is for $79 million.

Mr. MAHON. Could you revise that estimate downward without injury to your program?

Secretary TALBOTT. I suppose we could cut off something, but that is what we hope to contract within the next year.

Mr. MAHON. Mr. Flood.

### HOUSING

Mr. FLOOD. Why must those dormitories be four stories? I have been impressed by your layout and the way you have handled the thing, but you have spent a lot of time trying to get away from the rigidity and conventionalism and all of that kind of thing, and yet you trap yourselves, it seems to me, into a very awkward position.

Why in the world do you ruin a magnificent project, why do you destroy this old concept and then fall into the trap of a washed-up, has-been, four-story dormitory? Why do you do that?

Mr. OWINGS. Well, if I had done that, I would agree with you.

Mr. FLOOD. Then you do not?

Mr. OWINGS. No, sir.

Mr. FLOOD. Why?

Secretary TALBOTT. I think we have been able to have our cake and eat it. We have in effect two-story dormitory units.

Mr. FLOOD. Is this so: If you had utilized the plastic, penitentiary type of four-story—maybe that is what I am objecting to, in this modern style of design, maybe you removed my objection; is that what you think?

Mr. OWINGS. I cannot answer it; I cannot answer it that way. Except that to say that certainly it is not a modern penitentiary style. What we have been able to do, due to being on this single plan, when you walk across the campus here [indicating] you see you have a two-story dormitory group in some cases, in here, and in here, and in here, none; it is wide open [indicating]. Due to the fact that we are on the slope of a hill, the other two stories (making it a four story) are down the slope so that you have a two-story dormitory up, and a two-story down.

It is what you call a split level. You come into the center of gravity and you go either up or down, and we were able to get the two-story and I agree with you that we are intending to get the domestic quality of the two-story building.

Mr. FLOOD. I see what you mean; that satisfies me.

## AIR CONDITIONING

Now, what about air conditioning? Is there any in any of these buildings at any place?

Mr. OWINGS. The average Coloradan would be insulted if you suggested that you use air conditioning in their climate.

Mr. FLOOD. Well, I am not average or from Colorado; that does not influence me at all.

Mr. OWINGS. No. But we are taking into account the climate in every possible way, the prevailing winds, orientation due to the effect of the sun; we are making every effort to avoid air conditioning, air cooling, wherever possible.

Mr. FLOOD. Up in the Pocono Mountains in my district, we are just as free as are my friends from Colorado, on whatever rolling hills they have, and believe me, you would be much happier if you were having lunch with me in the Pocono Mountains this afternoon in an air conditioned room than you would with our wonderful climate up in the Pocono Mountains. Now what about that? It can get pretty hot on the mesa, or I do not know mesas. Is there any reason why you have not provided for it?

Mr. OWINGS. Yes.

Mr. FLOOD. Why?

Mr. OWINGS. One, we do not feel that it is needed in the dormitories. We have cross ventilation and we have taken advantage of the orientation, and we feel that these boys do not need it. Essentially, this is a winter school and we have figured out that during the hot summer

months, July and August, they will be in maneuvers, so that they will not be residing here to any substantial degree. Over here we have got air conditioning and this building, in the academic [indicating]—what we call cooling through evaporation cooling, which means without the use of a refrigerant, you evaporate water which passes over cloth and you get a degree of cooling which is satisfactory.

Now, when you get over into the laboratories and into the assembly rooms, then we do have straight air conditioning.

Mr. FLOOD. What about the dining area?

Mr. OWINGS. We intend to have this large room with high ceilings and we believe it will be unnecessary to have it in the dining hall. We will have exhaust ventilation in there and undoubtedly they will have to have some cooling equipment.

Mr. FLOOD. Now, suppose a firm of your repute was chartered by my good friend Hilton to build a hotel, and I do not mean the Istanbul——

Mr. OWINGS. We just finished that one.

Mr. FLOOD. I know you did. Now, suppose you were having me out to lunch in your Hilton Hotel on that spot on that mesa, would you have air conditioning in July and August, in that dining hall, for this distinguished committee?

Mr. OWINGS. In July and August——

Mr. FLOOD. Yes.

Mr. OWINGS. I was just thinking that I had dinner last night in the Garden of the Gods Club in Colorado Springs, and there was no air conditioning. We do not feel the need of it; my answer to you would be "No."

Mr. FLOOD. Did you have lunch there?

Mr. OWINGS. No; I was here at lunch.

Mr. FLOOD. Well, that certainly helps me.

Mr. OWINGS. Well, to answer your question seriously——

Mr. FLOOD. I do not want a luxury hotel out there, but air conditioning is no longer considered a luxury and we are considering 1956 and on.

Mr. OWINGS. Yes.

Mr. FLOOD. And this will be going ahead for 20, 30, 40, or 50 years, and air conditioning is going to be a routine thing, and why do you not have it?

Mr. OWINGS. Number one, if air conditioning gets less expensive and more reasonable, we certainly will do it, and we will provide means of introducing it. But in our opinion it is not necessary in the dining hall or the dormitories. It is necessary in the assembly halls and in certain other areas.

Mr. FLOOD. I hope you are right. I have an outside hunch that you are wrong.

Secretary TALBOTT. Mr. Flood, I have spent a good deal of time out there and have stayed at the Broadmoor Hotel. There is no air conditioning any place out there, and I have seen no reason to have it in the dining room or any place else that I know of. The humidity is so high out there that I do not believe you are going to need it. We have discussed it and we have found that the evaporation system works pretty well; and I would like to bring out one other thing——

Mr. FLOOD. I do not know anything about the system——

Secretary TALBOTT. The system is very cheap, does not cost much.

Mr. FLOOD. I do not know anything about it but I was interested to know whether you had a system.

Secretary TALBOTT. There is one thing that I would like to bring out, and which I do not think has been brought out in the question; instead of having a separate library building, the library is at the end of this building [indicating] and near the classrooms where we feel that the men will have better use of that library.

Now, at this place the whole building will have a certain amount of this evaporation system. But some of the assembly halls down the middle, I think, we will have to put in conventional air conditioning.

Mr. FLOOD. Whatever you have to do, do not look silly in 5 years in coming back here for some kind of air conditioning.

PARKING FACILITIES

What about your parking facilities? You are up on a finger mesa. What about the parking facilities for mamma and papa and the whole family?

Secretary TALBOTT. And all of the professors down at the other end.

Mr. OWINGS. I am very glad you brought that up.

Mr. FLOOD. So am I.

Mr. OWINGS. We are kind of proud of it. At the end of—at the administrative end, we have the parking facilities up here [indicating]. Up at this end. That is one large one. We have the drill grounds, the parade grounds here, and we know that is going to be a big thing.

Mr. FLOOD. Now, you are not going to use the parade grounds at West Point and Annapolis for parking purposes?

Mr. OWINGS. No.

Mr. FLOOD. Where are you going to park the cars, suppose say for a football game?

Mr. OWINGS. That is another problem. But first let us start with the parade.

Mr. FLOOD. Very well, start with the parade. If it is a retreat parade, or June week, for graduation, what are you going to do about it?

Mr. OWINGS. We have a road that comes up here, to a point in there [indicating]. We have parking in here [indicating], and right in here [indicating].

Mr. FLOOD. Then you are satisfied that the problem is taken care of, are you?

Mr. OWINGS. Yes, sir; we are.

LANDSCAPING

Mr. FLOOD. If you are satisfied with that, I do not care what it is. Will these courts on the land, these interior courts, be landscaped with indigenous landscapes of the West, the cacti and that kind of growth? You are not going to grow North American hardwoods out there are you?

Secretary TALBOTT. We have an agronomist. I never knew what an agronomist was, concerning the treatment of a lot of things, until we got into this. The agronomist is a fellow who has studied the soils and all of the things that will grow there. Up around the Broadmoor Hotel, you know, Mr. Scrivner, you have been there a good many

times, they have all kinds of vegetation, because they have water. If we have water in these courts, we can grow pretty nearly anything we want to.

Mr. FLOOD. Of course, if you irrigate you can. But I mean, you propose that a part of your show will be to landscape this area with indigenous plants?

Secretary TALBOTT. Yes.

Mr. FLOOD. Landscape with all kinds of plants?

Mr. OWINGS. Yes.

Mr. FLOOD. You intend to do that?

Mr. OWINGS. We have got that right here.

Mr. FLOOD. I know; the artist can do that; that is very nice; that is very attractive.

Mr. OWINGS. Well, we intend to try to follow what we show you here.

Mr. FLOOD. All right, just so I know.

Now, what about the entire mesa?

Mr. OWINGS. Up here, if you will notice this lacy line, that indicates that all of the land which slopes down here will be left the way it is, which is in scrub oak and various items. This area in here, in here we will have concentrated areas of green.

Mr. MILLER. Mr. Flood, will you yield for a question?

Mr. FLOOD. Certainly.

Mr. MILLER. Is there any place in this design for ivy?

Mr. MERRILL. Absolutely. As one of the great architects said, ivy is one of the architects best friends.

Mr. OWINGS. Yes; that is one of the nicest things you can have around these things. It warms it up.

Mr. FLOOD. Well, if the worst comes to worst, my friend would perhaps like to see an old tower up there some place.

Now, what about the slopes of this mesa; what are you going to do there; are you going to landscape that?

Mr. OWINGS. Wherever you see this fringe, it is in general intended to leave the natural vegetation in place.

Mr. FLOOD. All right, you are going to landscape it?

Mr. OWINGS. Yes.

Mr. FLOOD. Let me ask you this question: On that top part of the map, you show a series of finger mesas, branching out from the mountain, background?

Mr. OWINGS. Yes.

Mr. FLOOD. Do I understand you are suggesting that this Air Academy, your mesa, is going to be an artificial oasis in the midst of the Sahara for this barren Colorado western hopeless finger mesa desert; are you the oasis or what is the story?

Mr. OWINGS. This land has been used up to now generally for grazing; it is what they call dry farming grazing. It will support a certain number of cattle. There is grass on it and it is not barren to the extent that you say.

We have had a lot of water in the last 2 or 3 months for the first time in the last 6 or 7 years. It has all turned green and it is lovely out there now. This will be more intensely channeled because it will be more intensely used, but under normal conditions, it will be very pleasant.

Mr. FLOOD. Is there any sand?

Mr. OWINGS. There is no sand. There is some rock outcropping, but generally, it is grazing land.

Mr. FLOOD. This is not a Shangri La thing at all?

Mr. OWINGS. No.

Mr. FLOOD. In the middle of nowhere.

Mr. SCRIVNER. No, as a matter of fact, there is a very heavy growth of pretty substantial pine out there.

Mr. OWINGS. Yes, pine and scrub oak. It is quite lovely.

Mr. FLOOD. What are the possibilities on the mesa for walks and strolling in the evenings; is there any way to relax for these fellows who want to take a walk in the shade; are there outdoor swimming pools other than a gymnasium and a football field?

In addition to these places have you not—in addition to these other facilities, have you provided walks, say, from the dining hall to the dormitory?

Mr. OWINGS. Down through this natural terrain there is ample opportunity to develop shady walks. There are actual bridle trails there now.

Secretary TALBOTT. Show Mr. Flood where the women will be located.

Mr. OWINGS. The girls' quarters, in case you had them in mind, are up here.

Mr. FLOOD. I had that in mind.

Mr. OWINGS. When they are going to have hops, the girls will come to this point, in these quarters which looks a little like a motel. That, as you can see, is about 1,200 feet up to here [indicating]. The social hall will be reached by devious and gentle walks.

Secretary TALBOTT. And there is a walk out around Cathedral Rock.

Mr. OWINGS. And over here [indicating] is a lovely place.

### TYPE OF CONSTRUCTION MATERIAL

Mr. FLOOD. All right. Let us go back to your decision on the kind of material you are going to construct the outer walls of these buildings with. Do I understand that you may have different kinds of materials in different buildings, and if so, why do you want to do that?

Mr. OWINGS. Because of different buildings, we would definitely, in a development this large, have some variety.

Mr. FLOOD. Why?

Mr. OWINGS. Because it would become monotonous to take just one material and carry it throughout.

Mr. FLOOD. Do you mean the great gray towers at West Point become monotonous? I certainly do not think so.

Mr. OWINGS. Well, I see no reason why you should duplicate the great stone towers at West Point out here. And I feel that with the possibilities that are offered in masonry construction, and with the variety of designs which we have here in the contemporary architecture—each of the character of the courts, for example, should be quite different.

Mr. FLOOD. I think that is an excellent answer.

Mr. OWINGS. Maybe I had better stop.

Mr. FLOOD. That is why I stopped you. You impress me with your native red stone bases for those terraces there. Now, what

about the color of these buildings regardless of the materials, with this green landscaping, with the mountains in the background, with that blue sky, is the color scheme for all of the buildings, regardless of the material, going to be white?

Mr. OWINGS. White?

Mr. FLOOD. White.

Mr. OWINGS. No.

Mr. FLOOD. Why not?

Mr. OWINGS. Again, for variety. Where we do have glass, it is an interesting thing; glass actually shows a glazed quality, and actually looks dark, and I would say that at this point—and this gives you a fair picture [indicating] you would perhaps have slate gray and sparkling blue against white of this building here [indicating].

Mr. FLOOD. I was in hopes you would say that. All right.

Let me say this: Mr. Talbott and I have certainly established no long record here for agreement on the Air Force. And he will be astounded and very unhappy, maybe, to learn that I am very much impressed with this scheme and the design and the entire presentation. I am a product, as my friend from Maryland suggests, of the ivy halls and I have a fond affection for them, but I see no reason in the world why they must be transplanted to this new country and this new idea and this new Air Force.

Now, if the Air Force thinks of the wild blue yonder, and wishes to have its spirit soar with the wings of its personnel, I think there is a great soul, and a great spirit and I think there is considerable area for the aesthetic in what you have shown me here. I have seen it. I am very happy, very pleased, very delighted at this entire concept of this entire thing.

Mr. MAHON. Mr. Secretary, would you care to have me ask him to suspend at this time?

Secretary TALBOTT. No, sir; I am delighted.

Mr. FLOOD. And I am glad to have these long-haired fellows here to support me, they just make me feel much better; these architectural people, and obviously they mean sincerely what they are saying. That, to me, is entirely modernistic; I do not consider it modernistic—I mean futuristic. I think somebody made a very stupid, unfortunate error when you brought out that silly folding tent that no Arab would be found dead in; he would not even fold it up and take it away. I think that was a mistake. I do not believe you ever meant it. Certainly I hope not. And since you have raced back with your pictures and convinced us, and told us that you were going to do certain religious aspects for this thing, I am satisfied with your word, and what you are doing.

Mr. SCRIVNER. Mr. Flood, may I ask a question there?

Mr. FLOOD. Certainly.

CHAPEL

Mr. SCRIVNER. All morning long you have kind of side-stepped any remarks about the chapel. What is the story about the chapel?

It has just been barely mentioned. We were told that was the first thing and that——

Secretary TALBOTT. The chapel, when they made the first model, as I understand it, they did not know anything about the chapel, and somebody took a piece of cardboard and put it in there——

Mr. SCRIVNER. Primarily to show the location?

Secretary TALBOTT. Primarily to show the location. I have no idea of not having a dignified——

Mr. SCRIVNER. What is in the minds of the architects about the chapel? That is the question that everybody is asking, and it has not been discussed.

Secretary TALBOTT. I would like to have them answer that.

Mr. FLOOD. I quite agree, and that is a question I want answered. I think the whole concept of majesty and of grandeur of this entire thing has been destroyed by this unfortunate incident of the chapel which was described, which had no spirit, no soul, and nothing else.

Mr. MAHON. All right, proceed, Mr. Owings.

Mr. OWINGS. Well, to begin with, among the religious groups that have come in contact with the general presentation, we have had no reaction, unfavorable, to it; that is the original presentation, as far as the chapel went. Religion and expression of it, three dimensionally, is a great and difficult problem. If you will watch the churches that are going up all over the United States incidentally, incidentally Mr. Belluschi is one of the great church architects in the country, in America, and he is one of our consultants. I frankly say that we hope that the religious feeling of this institution will evolve as we develop the soul of the institution itself. And out of our meetings with the consultants and our meetings with you gentlemen and the meetings with the Senate and the public and the feelings of all, we believe that in a year or two, in the next 2 years certainly, we will have some feeling, and we are going to continue to try to express, to evolve something out of this.

Mr. MAHON. Have you abandoned this tent-like structure?

Secretary TALBOTT. All we have here——

Mr. FLOOD. I am glad you asked that.

Mr. OWINGS. That has been removed from the model.

Mr. FLOOD Yes.

Mr. OWINGS. This area is what you might call the real estate that has been reserved for a religious edifice, and beyond that, gentlemen, we hope that, like religion is supposed to evolve out of inspiration, we hope that we will develop an inspiration as this thing goes along. We have not the remotest idea of what we propose to do on this chapel.

Mr. FLOOD. I think that is a good answer to the question by Mr. Scrivner.

I want to say this: I do not consider that modern, Mr. Chairman, and you, Mr. Talbott.

I am aware of the history of what the Nile did with architecture indigenous to that area. There is an amazing similarity to the terrain and to the entire concept of this to the ancient Nile.

They did almost what you are doing. Certainly, it does not have to be Romanistic and it does not have to be a Greek temple nor a Gothic cathedral concept. That is not a condition precedent to what you men are doing and I agree with you.

I am a Roman Catholic and I like these ancient, medieval cathedrals which we all have visited. However, even in my church, as you know, in the West and Southwest they are developing almost futuristic concepts of the Catholic churches which no one would have believed a few years ago.

I hope, as you say, through the spirit of this Academy and what you have shown us, there would develop a chapel or an institution for the chapel which will fit into what I think is a good American institution for the years ahead, and I compliment these gentlemen, Mr. Chairman.

Secretary TALBOTT. Mr. Chairman, may I say this?

Mr. MAHON. Yes.

Secretary TALBOTT. If it is convenient for the committee, I would like to have our first studies of the chapel brought in to show your committee before we make any further moves. We will bring those studies in before we spend any money other than the architectural expense of drawing up some sketches, but before we spend any money other than merely on the design, I would like to bring it to you, and let you approve it.

Mr. MAHON. Mr. Sheppard, I believe you had 1 or 2 additional questions.

CONSTRUCTION SCHEDULE

Mr. SHEPPARD. I have two final questions, and they are premised, Mr. Secretary, upon the fact that I interpret from your conversation that you are desirous of completing this project as rapidly as you can, because of the academic requirements which are inevitably involved.

When is it anticipated that your plans and specifications will be finalized, or completed?

Secretary TALBOTT. We hope to be able to ask for bids on these buildings within 6 months.

Mr. SHEPPARD. May I ask you this question, sir:

Why is it necessary to approach it upon an incremental premise?

Secretary TALBOTT. Do you mean one building at a time?

Mr. SHEPPARD. In accordance with what you have said, you expect to start on X buildings, and so forth. My question was directed to when would your plans be completely finalized in order that you might proceed with construction?

Secretary TALBOTT. I think we can proceed, Mr. Sheppard, almost immediately.

Mr. SHEPPARD. You can on an incremental basis; I will grant you that.

Secretary TALBOTT. We can proceed with the grading of the mesa, and we can proceed with all of our utilities—the so-called groundwork, and we will let the contract for these two buildings which are the big structures, so that they will be available in the fall of 1957. If we had those two buildings, we could start.

Mr. SHEPPARD. Off the record.

(Discussion off the record.)

When could your architects and design engineers have your projects, structurally speaking, ready? I am not talking about the ground work. That is something we all take into consideration, as the first premise, but when will your structural engineering and other techniques be completed?

Mr. OWINGS. Do you mean for the whole project?

Mr. SHEPPARD. That is exactly what I mean; structurally speaking.

Mr. OWINGS. That will take in the neighborhood of 2 years.

Mr. SHEPPARD. Why is it necessary, gentlemen, with your ability, to take 2 years to draft the blueprints, and plans, because you already have a concept as delineated here this morning?

Mr. OWINGS. I can answer that this way: Economy is essential here in this project and the phasing of construction work in relation to the labor market, and the material market in an area is fundamental. If we put too much work on the market out there, the prices would go sky high. We are trying to build this in increments, because the fundamental design has already been established.

We do know the location of the buildings. Everything in the way of economy is based upon the principle of a little at a time, feeding it into the area on a time schedule.

Mr. SHEPPARD. What you are doing is phasing this situation into the ability of the area where it is to be located?

Mr. OWINGS. That is right.

Mr. SHEPPARD. If you are going to do that, then immediately I am going to want to know what is going to be your additional cost to follow that formula?

Mr. OWINGS. It is going to maintain a decrease in cost.

In other words, this area out there cannot absorb $100 million at one time.

Mr. SHEPPARD. As I understand your technique of engineering, it is going to possibly create a lesser structural cost, but what is it going to do to your military training program which is a very important factor and which in some instances might overshadow the other?

Mr. OWINGS. If the $79 million is made available to commit in 1956, that will be done. Then 3 months from now, we would like to let some contracts, and 9 months from now we would like to let another contract. If we get the $79 million, we will commit it during 1956. That will give us an Academy which will function completely for 1,300 students with the supporting personnel. That is the whole point.

Unfortunately, there is a gentle rise in construction costs during each year. Each year labor goes up a little bit, and every month we save in getting this under construction, without reference to the academic requirements, it saves the Government money.

Mr. SHEPPARD. You mean by that that your cost of labor in all of its phases, constructionwise, in that area, will be decreasing percentagewise over the period of the next 3 to 5 years. Is that your concept?

Mr. OWINGS. It will be increasing percentagewise over the period.

Mr. SHEPPARD. It will increase?

Mr. OWINGS. Yes; as it does over the United States.

Mr. SHEPPARD. If that is a factor, it is somewhat obvious to me that the sooner you can get your contracts out into the hands of the contractors, the less money it will cost to construct this project.

Mr. OWINGS. That is where you run one thing into the other, because beyond a certain point you would have to import labor, and build houses, and you would have a gold rush or a boom there which would distort the price picture, and which would hurt the very thing we are trying to do.

Mr. SHEPPARD. That has not been the construction evidence before this committee, as it relates to other projects of extreme magnitude. In other words, we have had heretofore very definite testimony as I recall, and as Mr. Riley recalls, if I am not mistaken, because he has been a part of this consideration, to the effect that where you could have your blueprints and specifications laid down, and ready to go under the present market in a competitive status, it is less expensive.

Today you have a competitive contractural market; do you not?

Secretary TALBOTT. Yes, sir.

Mr. SHEPPARD. One of the highest competitive markets which we have had in the last 15 years prevails today.

Secretary TALBOTT. That is right.

Mr. SHEPPARD. It would appear from that point of view and if this were completed, you could issue your contracts, even though, perhaps, you would have to have several contractors working on them.

Secretary TALBOTT. We expect to do that.

Mr. SHEPPARD. However, that does not necessarily mean you disturb the economy of the locality which would create a situation whereby you could not move into your operations and have them completed, instead of moving your tenants into the place, and having to have a continuity of time in construction, which is always the right thing to do on any project, and particularly a project of this character.

Secretary TALBOTT. Mr Sheppard, may I interrupt?

Mr. SHEPPARD. Yes, sir. I am very seriously interested in that aspect of it.

Secretary TALBOTT. I wonder if you want me for any further questioning. I am supposed to be at 2 o'clock before another meeting.

Mr. MAHON. Off the record.

(Discussion off the record.)

Mr. Secretary, I would like to say you have made a very good presentation. I want to say before we adjourn that we are very appreciative of your presentation here today. It has been very good, and very interesting. It of course has been a thousand percent superior to any presentation which you have been able to make before. I assume that you have had more time to work this thing up, but we thank you very much.

Secretary TALBOTT. Thank you, Mr. Chairman.

## FEES

NOTE.—The following statement was supplied in response to Mr. Whitten's question on page 28 concerning fees:

Payments for architectural-engineering services at the permanent Air Force Academy is as follows:

| | |
|---|---|
| 1. Paid Skidmore, Owings & Merrill under letter contract as of July 20, 1955 | [1] $840,456.67 |
| 2. Due Skidmore, Owings & Merrill under letter contract as of July 20, 1955 | 337,833.33 |
| 3. Paid Alster & Associates, Washington, D. C., for topographical services | 92,720.00 |
| 4. Paid U. S. Geodetic Survey for hydrological survey | 17,890.00 |

[1] Includes soil investigations, materials testing, etc.

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